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FREDERICK C. WARNSHUIS, M.D.
EDITOR

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Original Articles

DIAGNOSIS AND TREATMENT OF TUBERCULOSIS *

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CHICAGO, ILL.

I deem it an honor and privilege to be invited to address this association upon the subject of diagnosis and treatment of tuberculosis. I recently heard a speaker apologize to his audience for addressing them upon "so hackneyed a subject," but I hope none will consider tuberculosis a "hackneyed" subject until it has become as rare as smallpox, and I am optimistic enough to believe it will become so—when medical men awake to a new conception of the problem and realize that since more people die of tuberculosis than of all other causes combined, then certainly a much larger proportion of their patients suffer from tuberculosis than they hitherto suspected.

Let us get it firmly fixed in our minds that nearly all adults have some tuberculosis and it is not a question of whether the individual has or has not a tuberculous infection but rather what is his tuberculosis doing to him. Are the tubercle bacilli which are present in the body living and multiplying or are they held as prisoners in some latent focus where they may remain harmless throughout the life of the individual?

EARLY DIAGNOSIS.

In all discussions of the methods of combating tuberculosis there is a unanimous agreement that early diagnosis will do more than anything else to curb the disease. But before we can get far in this direction we must completely change our conception of what early diagnosis means, and instead of considering our diagnosis early when we have determined that our patient is suffering from active pulmonary phthisis let us awake to the realization that this is late diagnosis, and that most of the cases said to be "predisposed to" tuberculosis, or to have "latent" tuberculosis if carefully studied are really active cases.

The most common mode of infection is by inhalation; the majority of the bacilli fall upon

the mucous membrane of the nose and throat, and only a few are carried beyond the trachea. They then pass through the mucous membrane, without producing local lesions, into the lymph spaces where they are seized by the leucocytes and carried to the neighboring lymph-nodes.

If the bacilli are especially virulent or if too many bacilli have been seized by a single cell the leucocyte dies, and the cell and its contents are taken up by the endothelial cell which disintegrates the dead leucocyte, but having no power in itself to destroy the bacilli they are set free, and traveling through the lymph channels into the thoracic duct pass into the blood stream where they are clumped by the agglutinins and form minute thrombi which lodge in the small terminal blood vessels in the lungs. There when they find lodgment, they are again surrounded by the leucocytes and the tubercle is formed.

In the tubercle we have living bacilli which may multiply and secrete toxic substances which can escape from the tubercle, while the bacilli themselves remain prisoners.

These toxic substances have the property of converting body fat and protein into food for the bacilli, and when produced in abundance destroy body tissues to such an extent that it is necessary for the patient to consume more food than the normal individual, to supply this waste and perform the normal functions.

It is necessary to differentiate sharply between the toxemia of the development stage or what might be called the prodromal stage of tuberculosis, and that of active disease. It must be recognized that this prodromal period may extend from infancy to middle life, and the symptoms be so slight as to be recognized only upon the most careful study, and that there may be long intervals during which there is no tangible evidence of anything abnormal. This is best studied in children. The mother may notice that the child has stopped growing, that he tires easily yet looks well. He lacks enthusiasm in his play, lags behind the others in school, is bright enough but won't apply himself and is accused of being lazy. His shoulders droop and he doesn't stand erect. Ergograph tests show that his muscular ability may be normal for the first

* Read before the Section on Medicine, Mich. State Medical Society, 48th Annual Meeting held in Flint, Sept. 4-5, 1913.

part of the test period but falls away quickly and that the total work of his muscles for the whole test is half that of the normal child.

In adults like symptoms appear. Blood pressure will average ten mm. of mercury below normal for the age and sex of the individual. Extreme weariness follows slight exertion. They are "tired all the time" as they often say. Nervousness, nervous breakdown, digestive disturbances, depression of spirits, cold hands and feet and lack of appetite. It is characteristic of the digestive disturbances of tuberculosis, that they do not respond to the usual remedies. Slight enlargement of the thyroid with mild tachycardia, resembling Graves' disease is often noted. These disturbances are so slight that a physician is rarely consulted except perhaps for "stomach trouble" or a "tonic" is requested because the patient is "all run down" and the suspicions of the physician as to real nature of the trouble are not aroused.

A slight aggravation of these symptoms may persist for a year or more before anything tangible develops. Then begins the loss in weight, a slight hacking cough, the patient has a series of colds, or frequent attacks of "the grippe"; then he asks his physician what is wrong, and for the first time a systematic examination is made.

Having once suspected that tuberculosis may have something to do with the patient's condition, the question arises as to how we shall proceed to discover whether the patient has a tuberculous infection, keeping clearly in mind the difference between tuberculous infection and tuberculosis as a clinical entity.

TUBERCULOUS INFECTION.

Tuberculous infection occurs most frequently in childhood, though it may occur at any age, and let me say just here that the sooner we discard all notions of heredity, the sooner will we arrive at a truer conception of the disease.

Every case of tuberculosis comes from some other case of tuberculosis, and we should make a definite effort to trace every case to a probable source. While we will be often disappointed in discovering the source of infection, persistence in our investigations will usually be rewarded by the discovery that the infected person frequently visited, or was closely associated with some one who was an open case.

So common has it been in my experience to find tuberculosis in roommates and friends of tuberculous individuals and so strong are my convictions in this direction, that I venture to lay down the axiom that when you find a person suffering from tuberculosis, you will find one or more of the close associates infected. In nearly four thousand cases of which I have record more than seventy per cent. of those

who were in close contact with open cases show evidence of infection.

Inquiry regarding tuberculosis in other members of the family will be very often met with prompt denial, but the physician can draw his own conclusions from the patient's description of the last illness and previous health, of those who died of pneumonia or any wasting disease. Much significance can be attached to several small children in the family having died of convulsions, as suggesting possible tuberculous meningitis. Such cases are not sources of infection, but they suggest a possible common source of infection. Often the true source of infection is little suspected. I have in my care a family of seven. Mother, two daughters, the husband and three children of one of the daughters. The two daughters had active tuberculosis, the husband and three children show evidence of tuberculous infection, but none of the six is an open case. The mother—apparently the only healthy one in the family, is a rugged-looking woman of sixty-five, and for a long time she refused examination because she was not sick. Examination revealed a moderate involvement of the right apex with a small cavity, showing no signs of activity. Cough and expectoration were denied, but after persistent effort a specimen of sputum was obtained and found to contain tubercle bacilli.

Much importance may be attached to pneumonia, pleurisy or bronchitis in the history of the patient, while in children, measles and whooping cough are frequently followed by tuberculous activity, usually in the glands.

PHYSICAL EXAMINATION.

Evidence of exposure to infection having rendered it necessary to make a physical examination, this should be undertaken with great care, and should preferably be made at several sittings before a definite opinion is expressed.

It is not my purpose to discuss in detail the technic of physical examination, but in teaching I find that the average physician looks for pronounced symptoms, and does not attach sufficient importance to the slight departures from the normal which are of the utmost significance in making an early diagnosis.

However skilled we may be in making physical examinations, we are always confronted with the possibility that these slight departures from the normal may be produced by other causes, but we have in the various tuberculin tests, when properly interpreted, absolutely safe and dependable means of deciding the question.

In November, 1890, Robert Koch¹ employed these words: "A physician who does not use all the measures at his command to diagnose tu-

1. Robert Koch, *Deut. Med. Wochen.* Nov. 13, 1890.

tuberculosis in its earliest stage * * *
 will be accused of serious neglect. * * *
 In doubtful cases the physician should assure himself of the presence or absence of tuberculosis, by means of the tuberculin test injections."

TUBERCULIN.

The name tuberculin was given by Koch to the substance which he prepared by boiling down the culture fluid on which tubercle bacilli had grown, to one tenth its original volume, removing the bacilli by filtering through porcelain.

He afterwards prepared another product by a different method and called it new tuberculin. Many other preparations from the tubercle bacillus have been made by other workers and all are classed under the general name of tuberculin. Much confusion has arisen from the fact that many writers have called tuberculin a specific substance because all of these various tuberculins produce a specific reaction in persons who have a tuberculous infection, whereas the fact is that all tuberculins contain several specific substances, each of which plays a definite part in the specific reaction. All of the specific substances are found in the tubercle bacillus, which is a complex structure, and the different tuberculins differ from each other chiefly in the relative proportions of the various constituents obtained by the different methods of extraction.

The reaction to tuberculin is dependent upon the law of hypersensitiveness to foreign protein, and the reaction is essentially the same, whether it reaches the sensitive serum by being injected into or under the skin, dropped in the eye, forced through the skin by inunction, or by scarification.

The last, which is the von Pirquet test, is the most convenient, but its usefulness, like that of the others, depends upon the ability of the observer to interpret it. There are many who say that the von Pirquet reaction is of no value in adults, and if they interpret a *negative* reaction to mean that the patient has no tuberculosis and a positive reaction to mean that he *has* tuberculosis, then I must subscribe to their belief that it is of no value, but after observing the results in some five thousand tests, I think we can predict almost to a certainty, from observing the von Pirquet reaction, what kind of response will be obtained from a subcutaneous diagnostic dose of old tuberculin, which nearly all agree is diagnostic of active tuberculosis.

The tuberculin test is not direct evidence of tuberculosis, but is evidence that the individual has been sensitized by the presence of tubercle products, and by the degree of sensitiveness we conclude whether or not active tuberculosis is

present. The von Pirquet test should be applied to every individual suspected of being tuberculous, and if the result is positive then the patient should be kept under observation until well founded and definite conclusions have been reached.

A positive reaction means that the patient either has, or has had a tuberculous focus. A negative reaction means that he either has no tuberculosis, or is so overwhelmed with tubercle toxins that he has lost his ability to react to the small quantity of tuberculin introduced by the scarification. While it is quite true that ninety per cent. of all adults will give a positive von Pirquet reaction because ninety per cent. of all adults have a tuberculous focus, it does not require a large experience to interpret the milder degrees of reaction which are due to these old or latent foci, and if we apply a skin test now, and again in a few months getting a much more vigorous reaction, then it should be considered evidence of activity and the patient given a diagnostic dose.

TREATMENT.

So much has been said about the value of rest, fresh air, and good food in the treatment of tuberculosis, that it is not uncommon to have a patient express the opinion that "any one knows how to treat tuberculosis, just sit out doors, eat eggs and drink milk." How fortunate it would be if it were as easy as this. In our work in the dispensary we are not confronted with the problem as to what climate or food to select. They live in basements and back tenements often without means to buy sufficient food for their families, much less select a special diet, and yet for the past five years our patients have made an average gain of a pound a month. We believe this to be due solely to tuberculin treatment, for except for the tuberculin injection once a week, we are able to do little else for them.

To say that a patient is improved may be a matter of opinion, but when we can see many patients who for long periods of time, have been unable to work, have their earning capacity restored and be able to continue at work and support their families, it is not surprising that we have no small measure of faith in the efficacy of specific treatment.

It is gratifying to find that others have similar faith. Prof. Dr. Nietner² of Germany, in November, 1912, says "As we must accept the theory that the specific resistance of the infected organism is raised through the injection of tuberculin, it follows that the tuberculin treatment should be started as early as possible. This is the best possible way of preventing closed tuberculosis from becoming open tuber-

². Prof. Dr. Nietner, Inaugural Lecture, Lancet, Nov. 16, 1912.

culosis. My long experience has converted me into a profound believer in the efficacy of tuberculin."

That tuberculin is steadily growing in favor is shown by the following statement made by Pottenger³: "In the German Sanatoria, in 1905 I found considerable hostility to tuberculin, and only about twenty-five per cent. were employing it therapeutically. In 1909 about two thirds of them were using it."

In the specific treatment of tuberculosis, it is well to have clearly in mind what we can expect it to accomplish, and what it cannot do.

Specific treatment stimulates the production of antibodies, which in their turn inhibit the growth of the tubercle bacillus, and when completely effective dissolve and destroy the bacillus. But they do not neutralize the destructive effect of the toxins, which have already become fixed to the body cells, though they may neutralize the toxins which are being formed. It has no effect upon material already destroyed and which must be eliminated in the usual way.

One underlying principle in the successful employment of specific treatment, is that for the production of immunity, two factors are essential. First: a sufficient dose of a product which contains all the substances requisite to the production of antibodies against the separate constituents of a complex structure like the tubercle bacillus. Second: the repetition at regular intervals of smaller doses of the same or similar tubercle product for the purpose of stimulating the functions of the antibodies.

This explains why we often get a striking improvement after a large dose of tuberculin given for diagnostic purposes. We can keep up a more sustained improvement by following with small doses, than when the larger doses are continued.

In May, 1912, Dr. Karl von Ruck⁴, in a paper which he read before the Chicago Medical Society, announced that he had perfected a vaccine by the use of which he could produce complete immunity to tuberculosis in uninfected children and adults, with a single dose. Believing this to be the most important advance in tuberculosis work since the discovery of the tubercle bacillus by Robt. Koch, I at once made arrangements to visit the research laboratory of Dr. von Ruck and study the subject at first hand.

To my great gratification I found there a group of earnest workers, and a laboratory equipped to the last detail, with hundreds of animals under experimentation.

Unlike many preparations presented to the

profession, there was absolutely no secrecy regarding the preparation or the details of its manufacture, and any reputable physician is welcomed and afforded every opportunity to study every phase of the work.

This remedy, which is a vaccine containing all the soluble products of the tubercle bacillus, in proportions differing from those found in the tubercle bacillus as shown by chemical analysis. After a person, not infected with tuberculosis receives an injection of this preparation his serum develops the property of completely dissolving and destroying the tubercle bacillus in a test tube, a property which his serum did not possess before the treatment.

When the contents of this test tube containing the tubercle bacilli killed by the patient's serum, without the addition of any other product are injected into an animal, the animal does not develop tuberculosis.

Recently an effort has been made to discredit this work, but in the six weeks I spent in the laboratory and in my own experience in treating more than two hundred children and adults with the vaccine, I have had too many convincing proofs of its efficacy to be disturbed in my belief that we have a means of successfully protecting against tuberculosis.

While this remedy is distinctly not a cure for tuberculosis, it will do all that any of the present known specific products will do towards checking the ravages of the disease, and further, we have in this vaccine, as delicate a diagnostic aid as any we possess, with the added advantage that while using it for diagnostic purposes, we are at the same time employing a remedial agent.

EMPTYING OF THE UTERUS AS ONE OF THE METHODS OF TREATING ANTEPARTUM ECLAMPSIA *

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It may seem unnecessary to discuss at this late day the advisability of emptying the uterus as a method of treatment of antepartum eclampsia. For the great majority of practitioners, when confronted with a case of antepartum eclampsia, knowing that primarily the pregnant state is responsible for the patient's condition, proceed to empty the uterus. They may not be satisfied with the results of such treatment, may even be discouraged at the high maternal and fetal mortality attending eclampsia, but the very next patient is subjected to the same treatment. This has always been and always will continue to be the case until the true cause of eclampsia be discovered and by

3. Pottenger, F. M. *Tuberculin in Diagnosis and Treatment*, 1913.

4. von Ruck, Karl. *Jour. Am. Med. Asso.* May 16, 1912.

* Read before the Section of Gynecology and Obstetrics, M. S. M. S., 48th Annual Meeting, held in Flint Sept. 4-5, 1913.

prophylactic treatment the complication can be prevented.

Try as we may we can not escape the logic of the situation confronting us. While the real cause of eclampsia is unknown, it is undoubtedly true that the condition is due to an intoxication arising primarily from the pregnant state. Non-puerperal women are subject to toxemias closely resembling in many of their characteristics that present in eclampsia. The clinical symptoms and pathologic changes in the liver in acute yellow atrophy of that organ, closely resemble the characteristic symptoms and pathologic lesions of eclampsia, but the two diseases or complications are not the same. Eclampsia exists because the woman is or has been pregnant. Unless she were pregnant to start with eclampsia could not have been instant. Therefore, being induced by the pregnant state and because that state adds to the patient's danger under the best of conditions and treatment, the best interests of the pregnant woman are preserved by terminating the pregnancy as soon as this can safely be accomplished.

Is this not the way the average practitioner reasons and is this not what he does in practice? I believe this can be answered in the affirmative. Circumstances may be such as to modify his treatment. He may feel unqualified to institute the proper operative treatment; his patient may show signs of improvement after the first convulsion and he delays the operation; the first convulsive seizure may be intrapartum with labor progressing favorably, hence the delay. But aside from these and other exceptions the great majority of practitioners at least believe in, if they do not practice, emptying the uterus in antepartum eclampsia. If this be true why are the results of the operative treatment of antepartum eclampsia in general practice so poor? For there is no gainsaying the fact that the mortality and morbidity from this complication of pregnancy both from the standpoint of mother and child are still very high. This should not be true in reference to a mode of treatment employed for many years, unless there be associated with such treatment something which has tended to lessen its efficiency. Either this or the whole reasoning is wrong and there is no call to empty the uterus of an eclamptic for the purpose of bettering her condition.

THE CAUSE OF HIGH MORTALITY RATE.

The whole purpose of this paper is to call attention to what in my opinion has led to the poor results of the operative treatment of eclampsia in private practice. For there would be no question of the superiority of hospital over private practice statistics in this particular obstetric complication, were it possible to

compile such statistics from private practice cases.

The reasons for the poor results of operative treatment of antepartum eclampsia in private practice are:

1. The wasting of valuable time in other forms of treatment before operative delivery is accomplished.

2. The selection of the wrong method of delivery of the antepartum eclamptic, whereby the patient is subjected to prolonged anesthesia and trauma.

3. The resulting sepsis from improper technic in patients whose powers of resistance are greatly lowered by the action of the eclamptic poison.

1. The wasting of valuable time in other forms of treatment before operative delivery is accomplished.

This will be discussed first because on the whole it is more responsible for the poor results than either of the other two factors. I am perfectly aware of the fact that the number of convulsions is no absolute indication of the degree of the maternal intoxication. A patient may die immediately after the first or may survive a hundred convulsions. But we must not confound the exceptions with the rule. While the exceptional patient may live after many convulsions, it still is true, as I have shown statistically in a review of 530 cases of eclampsia treated by vaginal Cesarean section that: "The mortality in eclampsia after vaginal Cesarean section increases with the increase in the number of convulsions preceding the operation" and (2) that "When the operations are performed after ten convulsions the mortality rapidly increases until it reaches a high figure."

At the present time we have no accurate means of determining the degree of intoxication of the eclamptic patient. Our estimation must then be approximate and for that reason far from accurate. In the case of the particular patient under observation the fact that her individual organism is so acted upon by the eclamptic toxin as to react in the form of a convulsion, is warning enough that the patient is in serious danger and needs relief, not after the poisoning has gone on to the point where it results in ten or more convulsions, but immediate relief brought about by emptying the uterus promptly.

In my opinion there is where the practitioner has erred. He has emptied the uterus, yes, but only as a last resort when the patient is in bad shape, profoundly under the influence of the eclamptic poison. He has wasted valuable time trying to eliminate the poison by cathartics, diuretics and diaphoretics when the patient's conditions was such as to handicap his efforts. The dictum "empty the uterus first in cases of antepartum eclampsia and then em-

form of obstetric surgical treatment. Before 1900 even in some well equipped maternity hospitals aseptic methods were conspicuous for their absence. It is quite evident that a woman suffering from antepartum eclampsia might be benefitted by the emptying of her uterus, yet might die of sepsis, if poor technic had been employed. This death, however, would be counted against the treatment of eclampsia by operative delivery, unless it could be shown by grouping the cases chronologically, that the results after operative delivery improved as the operators became more aseptic and skillful.

This is just what these grouped cases show. In 1,126 cases of eclampsia (Table III.) occur-

ring prior to 1900 the maternal mortality was 23 per cent. where the women delivered themselves, while in 1,443 cases where operative delivery was employed the mortality was higher, that is, 28 per cent. If this difference in mortality were due to the superiority of the method of delay, medicinal treatment and spontaneous labor, it ought to hold good in cases occurring from 1900 to 1912. But such is not the case for in 290 cases of eclampsia with spontaneous labors between 1900 and 1912 (Table IV) the maternal mortality is 19 per cent. while in 1,496 cases treated by operative delivery during the same period the maternal mortality is only 15 per cent., an advantage of 4 per cent.

TABLE III.

Maternal Mortality after Spontaneous and Operative Delivery in Eclampsia.

Prior to 1900.						
	Spontaneous			Operative		
	No. of Cases	No. of Deaths	Mortality Percentage	No. of Cases	No. of Deaths	Mortality Percentage
Olshausen	111	24	21.6	77	16	20.8
Goedecke	97	27	27.83	192	31	16.1
Buettner (1881-1891)	41	15	36.5	75	19	24.66
Buettner (1892-1899)	162	31	19.13	162	34	20.97
Glockner	10	3	30.00	114	20	17.5
Bumm	61	18	29.5	27	8	29.6
Liepmann	180	41	22.77	...	...	....
Dührssen	38	8	21.00	80	19	23.75
Goldberg .....	...	..	16.28	38	13	34.21
Knapp	5	0	00.00	17	1	5.88
Schauta	73	16	21.9	153	73	47.71
Schreiber	59	12	20.33	78	15	19.23
Green	3	0	00.00	18	8	44.44
Paupertow	168	54	38.7	110	67	61.3
Baskin	43	5	11.63	84	18	21.43
Leske	7	1	14.28	29	5	17.24
Lantos	19	3	15.76	37	12	32.43
Ostrcil	22	2	9.09	51	15	29.41
Bayer	10	1	10.00	26	8	30.76
Meyer-Wirz	7	2	28.57	58	22	37.93
v. Braitenberg	10	0	00.00	17	2	11.76
Total	1126	263	23.35	1443	406	28.13

TABLE IV.

Maternal Mortality after Spontaneous and Operative Delivery in Eclampsia.

Between 1900 and 1912.						
	Spontaneous			Operative		
	No. of Cases	No. of Deaths	Percentage Mortality	No. of Cases	No. of Deaths	Percentage Mortality
Esch	77	16	20.8	267	45	16.8
Möhlmann	10	1	10.0	94	15	15.95
Daels	19	3	15.7	301	39	12.9
Seitz (München. Klin.) ('03-'07)	1	1	100.00	21	4	19.04
Zinke	26	4	15.38	...	...	....
Lichtenstein (1900-1911)	87	20	22.96	309	49	15.85
Lichtenstein (1911-1912)	24	00	00.00	21	5	23.8
Freund (1904-1912)	44	11	25.00	355	56	16.8
Meyer-Wirz (1900-1904)	2	1	50.00	24	4	16.66
Liepmann .....	...	..	.....	104	5	4.8
Total	290	57	19.65	1495	222	14.83

in favor of the treatment of eclampsia by operative delivery. And these figures do not by any means tell the whole story. These patients were not subjected to immediate delivery after the first convulsion, but the list includes patients delivered by operative means at varying periods after the first convulsion. According to our contention this is poor treatment, yet in spite of this the patients were helped sufficiently by the emptying of the uterus to make the results 4 per cent better than when the uterus was not emptied.

Olin, who from the nature of his material was able accurately to estimate the time elapsing between the first convulsion and the operative delivery, found the mortality in 31 patients with eclampsia, delivered one to three hours after the onset of the first convulsion to be only 3 per cent. In contrast to this, the mortality in 50 cases where the patients were delivered from six to twenty-four hours after the first convulsion the mortality was 28 per cent.

The opponents of the operative treatment of eclampsia are fond of advancing the argument that in 50 per cent. of the cases even after the uterus is emptied the convulsions do not cease. This only goes to show that the uterus was not emptied promptly enough after the first convulsion. Postpartum convulsions occur because the patient was so saturated with the eclamptic poison before the source of supply was shut off by emptying the uterus, that postpartum seizures were the result. They occurred not because of but in spite of the operative measures employed.

2. The selection of the wrong method of delivery of the antepartum eclamptic whereby the patient is subjected to prolonged anesthesia and trauma.

The eclamptic patient's condition is always serious. The liver, kidneys and brain are overwhelmed by the poison which not only is affecting the tissues of the organs themselves but is seriously interfering with their functions by its effect upon the higher nerve centers which control these functions. An additional burden placed upon the organism may be more than it can struggle against and death may ensue. More and more are we realizing that chloroform and ether are not the harmless drugs they were formerly supposed to be. Prolonged anesthesia is always dangerous to the patient and may result fatally in a woman whose system is not overwhelmed by poison. Much more is this the case with the eclamptic. Hence it is essential to choose the operative procedure which will empty the uterus the quickest with minimum trauma and shock to the patient.

Here also has the practitioner erred in the past. Many of his eclamptics were primiparæ

with rigid and undilated cervixes. Afraid of any cutting operation on the pregnant patient, hours have been spent in manually dilating a rigid cervix when a vaginal or an abdominal Cesarean section would have resulted in delivery in ten or fifteen minutes. We all know how manual dilatation is attempted under such circumstances. When the cervix is rigid it is not a question of an hour but a number of hours, the patient all this time under an anesthetic. Is it any wonder that such patients die? The wonder is that any of them survive such treatment.

I have been greatly criticized on more than one occasion for advocating that the practitioner be prepared to do vaginal Cesarean section under some circumstances. Yet I have seen no reason for withdrawing from my position. I still claim that the practitioner who is taught and expected to perform high forceps will accomplish far more and do less harm with vaginal Cesarean section in certain cases of rigid cervixes than would be the case if he used manual dilatation. The objection is made that he will cut into the bladder or rectum. He may if he has not mastered the technic, but even then it is no worse than *tearing* through the bladder and rectum or up into the broad ligament or into the peritoneal cavity as often occurs with manual dilatation. As far as I can see the only advantage of the latter operation is that bungling work is done out of sight and the death of the patient can be ascribed to the eclampsia. I am not advising that the bungler do *any* operation. Far better for the eclamptic if he keeps his hands off and simply watches the outcome. I am referring to the competent practitioner who is prepared to perform any emergency operation. With few exceptions students can be taught to perform this emergency operation. That they are not so taught is no argument against the principle I am contending for.

This is not the place to enter into a discussion of what operations are indicated under certain conditions. It is the principle we are chiefly interested in. Choose the operation which will empty the uterus the quickest with minimum trauma and shock to the patient. If to this be added delivery as soon as possible after the advent of the first convulsion, the result will be immense improvement in the mortality statistics of eclampsia.

3. The resulting sepsis from improper technic in patients whose powers of resistance have been greatly lowered by the action of the eclamptic poison.

It is unnecessary to discuss this section at length since it has already been referred to. While obstetric asepsis has improved during the past twenty-five years in private practice it can not be said to have kept pace with the ad-

vances in other departments of surgery. Slips in technic in obstetric operations performed in private homes are so common as to hardly command attention. As an example, consider the operation of manual dilatation referred to above. As ordinarily performed the fingers of one hand are used as dilators until they become tired or numb then the hand is withdrawn and the other hand introduced. Here is a great source of danger unless the greatest care be observed to keep the hand away from the anus, a region hard to sterilize and readily infected. This is only one example—many more sources of danger or slips in technic accompanying forceps operations, versions and other operations commonly performed upon the eclamptic might be pointed out.

Again attention is called to the improvement in the maternal mortality in eclampsia during the period from 1900 to 1912. Undoubtedly this improvement is due to better asepsis and

eclamptic poison and the sooner it is delivered after the first convulsion the better off it will be. This I have shown statistically, so far as vaginal Cesarean section is concerned. The total fetal mortality in 315 children delivered by vaginal Cesarean section was 21 per cent., while it was only 12 per cent. when not more than three convulsions occurred before the birth of the children.

Again, as we have seen, better maternal results follow rapid delivery with minimum shock and trauma. The same holds true for the fetus. It has long been recognized that prolonged anesthesia is injurious to the fetus, thus pointing the way to the substitution of other more rapid methods for the prolonged manual dilatation where the cervix is rigid, and so on through the list of operative procedures for antepartum eclampsia. What is good for the mother is good for the viable fetus.

For the purpose of studying the fetal mor-

TABLE V.
Fetal Mortality after Spontaneous and Operative Delivery in Eclampsia.

	Prior to 1900.					
	Spontaneous			Operative		
	No. of Cases	No. of Deaths	Percentage Mortality	No. of Cases	No. of Deaths	Percentage Mortality
Glockner	9	1	11.11	110	52	47.27
Buettner (1881-1891)	44	22	50.00	71	27	38.00
Buettner (1892-1899)	64	25	39.06	151	58	38.41
Goldberg .....	...	..	37.6	41	20	48.78
Knapp	5	0	00.00	18	4	22.22
Schreiber	71	15	21.12	78	24	30.7
Baskin .....	...	..	46.5	...	...	36.9
Green	3	1	33.33	12	4	33.33
Meyer-Wirz	7	2	28.57	46	28	60.86
Total	203	66	32.51	527	217	41.17

increased skill on the part of the obstetric operators. If to this be added immediate delivery after the onset of the first convulsion, we shall see during the next decade a great change for the better in the mortality statistics of antepartum eclampsia.

THE QUESTION OF THE FETUS IN ANTEPARTUM ECLAMPSIA.

Each year the rights of the unborn child are receiving more consideration at the hands of the obstetrician. While the majority still decide in favor of the mother, when it comes to a choice between the lives of the mother and child, ruthless sacrifice of the latter is being condemned more and more as time goes on. If the child be viable only those methods of treatment of eclampsia should be selected which will best safeguard its interests. Fortunately for both mother and child the interests of each are best served by identical procedures. The fetus, as well as the mother, is acted upon by the

tality in antepartum eclampsia after spontaneous and operative delivery I have grouped cases chronologically as before into two periods, prior to 1900 (Table V) and between 1900 and 1912 (Table VI). As would be expected, prior to 1900 the advantage is with spontaneous delivery for these were the days of rough methods and lack of appreciation of the rights of the fetus. The fetal mortality in 203 cases prior to 1900 when the deliveries were spontaneous was 33 per cent., while with 527 operative deliveries during the same period the fetal mortality was 41 per cent.

The second table, between 1900 and 1912, shows a great reduction in fetal mortality both after spontaneous and operative delivery, but more so after operative delivery because of the improvement in the skill of the operators.

In 220 patients during this period delivered spontaneously the fetal mortality was 23 per cent., while in 1,164 cases after operative deliv-

ery the fetal mortality was 29 per cent. It will also be observed that while the advantage, so far as the fetus is concerned, still lies with spontaneous delivery the ratio between the two has been reduced from 8 to 6 per cent.

Moreover it should be remembered that the patients delivered spontaneously were probably the milder cases, since in profound intoxication operative delivery has always been resorted to. When once it be realized that it is best for both mother and child that delivery take place immediately after the first convulsion, the superiority of operative delivery, so far as the child is concerned, will immediately show itself. I am confident there will be an improvement over the 12 per cent. fetal mortality referred to after vaginal Cesarean section when the operations were performed after not more than three convulsions.

CONCLUSIONS.

1. Since the pregnant state is primarily responsible for eclampsia,

to the eclamptic mother, is equally good for her child.

8. Hence, immediate delivery after the first convulsion will result in a low fetal as well as a low maternal mortality.

DR. JOHN BELL, DETROIT.

I am at a loss to know just what to say in opening the discussion on the subjects except perhaps to express appreciation of the resume from the standpoint of statistics which Dr. Peterson has given us, also to emphasize what he has stated in the treatment that as soon as the patient has had one convulsion the uterus should be emptied. At this day and age it seems strange that we should find men who still persist in using delay and "dilly-dallying" and giving this and that and the other when it has been proven so clearly by statistics that early operation causes the low mortality, and the neglect to operate early brings the high mortality. It seems that there is just one thing to do and we should get that thoroughly impressed on our minds as early as possible, and that is: when the patient has one convulsion to operate and not hesitate; not hold any further consultation, but empty that uterus.

DR. BOYS, KALAMAZOO.

I have always believed in the principles advocated by Dr. Peterson, early emptying of the uterus, and yet it is not without its difficulties. I have had three deaths from eclampsia. The first one the lady was playing cards at eight o'clock; feeling good. She soon became dizzy and nauseated; went home; in thirty minutes she went into coma, and in another hour she died. The post-mortem examination showed a typical finding of eclampsia. The second case was as healthy a young woman as anybody ever saw, apparently

TABLE VI.
Between 1900 and 1912.

	Spontaneous			Operative		
	No. of Cases	No. of Deaths	Percentage Mortality	No. of Cases	No. of Deaths	Percentage Mortality
Esch	44	7	15.7	190	46	39.1
Möhlmann	10	3	30.00	94	22	23.4
Daels	19	3	15.7	229	79	34.4
Zinke	26	14	53.88	...	...	....
Lichtenstein (1900-1911)	53	10	18.87	318	134	42.1
Lichtenstein (1911-1912)	31	7	22.58	19	5	26.31
Freund (1904-1912)	34	6	17.64	291	42	14.43
Meyer-Wirz (1900-1904)	3	00	00.00	23	6	26.08
Total	220	50	22.72	1146	334	28.69

The best interests of such patients are promoted by terminating the pregnancy as soon as this can safely be accomplished.

2. The wasting of valuable time in other forms of treatment before operative delivery, is responsible, in great part, for the poor results of treatment in antepartum eclampsia.

3. This is also aided by the selection of the wrong method of delivery of the antepartum eclamptic, whereby the patient is subjected to prolonged anesthesia and trauma and:

4. By the resulting sepsis from improper technic in patients whose powers of resistance are greatly lowered by the action of the eclamptic poison.

5. The eclamptic should be delivered as soon as possible after the first convulsion by the operation giving rise to the least shock and trauma.

6. The eclamptic patient should be delivered first and then elimination started, rather than the reverse.

7. Fortunately, the treatment best adapted

with a perfect condition of health. She began labor at term, was three-quarters through the dilatation period of labor—I might say her physician had examined the urine two weeks previously and it had been normal. At the time of labor he was not available and I was called. After three-quarters of the dilatation period she went just that quickly (snapping finger) into a convulsion; so quickly, in fact, that in delivering her across the bed her legs in striking out in convulsion threw me over against the wall. We immediately proceeded to the hospital as soon as an ambulance could be obtained. Delivery was started inside of an hour and finished in less than another hour. She proceeded to have convulsions, one after another almost continuously and died eleven hours later. The third case was one which a doctor in a neighboring town first observed after the first convulsion had taken place. At that time he boiled some urine in a test tube, turned it upside down and nothing ran out. That was the first I had seen of her and had a chance to observe the condition of the urine. We delivered this woman in I should say three to four hours after the first convulsion and she promptly died six or seven hours after the delivery. So even prompt delivery is discouraging or has been in the instances with which I have been familiar. About the only cases, with one exception, that we have had success in were those cases which we have delivered really before the convulsions took place. Where one has observed the urine and seen the increased amount of albumen in the urine and the bloating and other symptoms which will suggest it is very likely to occur, those cases we have succeeded in without any failure, but after convulsions have once been established I think our mortality has been more than success. The method of delivery employed has been manual dilatation. Perhaps I am blessed with more manual ability in my left hand than some are; I know I am than some of my conferees; I never have had to change hands; I can always deliver with my left hand; I never failed to dilate any cervix inside of an hour. The one case I just stated, we had the baby delivered in twenty minutes from the time we started to dilate. Perhaps the violence of the dilatation, as rapid as that, by our manual

dilatation, had something to do with shock that perhaps entered into the case. The second case stated had considerable chloroform. I had not the feeling at that time with reference to chloroform that I have now. I never use chloroform in obstetrics and have not for two or three or four years. She did have a considerable amount of chloroform and possibly it had something to do with the severity of her condition. I believe thoroughly in prompt delivery and in eliminative measures to follow than preceding the delivery.

DR. CARSTENS, DETROIT.

The question to me is always: Which is the best way? From the statistics that we can get it seems that the sooner you deliver the woman the fewer convulsions we are having. The simple question of delivery does not stop the convulsions because women very often have convulsions even after they are delivered normally without any effort at all, but a long series of cases have proven beyond any question of doubt that the quicker you can deliver a woman the better she is off. We never know what one convulsion will do. She might have one hundred and not hurt her a particle and the first one may produce some paralysis somewhere; the first one may kill her; all around the fewer convulsions the better, so that I believe in active interference and deliver them as soon as possible. If they have a slight attack and it passes over, why I believe in delivering them by a slow process of production of labor, by a catheter or anything of that kind; but if they have active convulsions they should be delivered quickly, and of course you can only deliver them quickly by vaginal Cesarean section. Manual dilatation takes time. The doctor just stated he had quite a strong hand, good muscles. I have too, but it will take you a couple of hours. If you deliver, as Dr. Peterson has so often talked, by vaginal Cesarean section, you can do it in five minutes.

Now, anybody I think, any reasonable person would say if quick delivery is necessary and is valuable, why certainly when you can deliver in five minutes it is a great deal better than waiting two hours and manipulating all kinds of ways, and I hold that it is up to the general practitioner, who is the obstetrician of the country to become familiar with the method of operating by vaginal Cesarean section. Of course when a man has not had much practical experience in that line he will say it is a very difficult thing, but it is not. Dr. Peterson, Dr. Morley, Dr. Bell and I, any one of us, will be glad to show you how it is done. It is a very simple operation; you can easily separate the bladder from the uterus and split up the anterior wall of the uterus so that you can deliver the woman with or without forceps in a very few minutes. Now, if by a combination of circumstances, by timidity and by fear you should cut into the bladder or if that uterus don't heal after you sewed it up, after you got the woman delivered, it does not hurt a particle if that woman has a hole in her bladder or if she has a uterus that has not healed entirely. That can easily be fixed up afterwards. It is a great deal better to have a woman in that condition than a woman that is buried six feet under the ground.

The Chairman: I was hoping, Dr. Carstens, that you were going to say something about nausea and vomiting in pregnancy.

Dr. Carstens: That is a very, very hard thing to say. I will just say this: These simple, ordinary cases of course we do not figure on, but the pernicious vomiting in pregnancy is certainly a most difficult problem. I have seen women vomit and vomit and vomit and hoping that the vomiting would cease and hoping that the vomiting would cease, but it does not, and they get weaker and weaker and all at once you decide that that woman really cannot live unless you end the pregnancy, and you end pregnancy and you do it too late and the woman dies. I have seen that over and over again quite a few times; I have myself done the same thing. We cannot just see where the line of demarcation is, so I hold it is one of the most difficult problems we have to deal with; but I think it is a great deal better to err on the safe side and bring on premature labor and save the woman's life even if once in a while we may do it unnecessarily. We see cases where women vomit very much, and we think they certainly would die and they finally recover, but I have seen a great many women where we err on the other side. For that reason I think we should be on the safe side and produce premature labor in these kind of cases before it is too late. With an examination now of the urine and the ammonia and so on we can be in a position that we can make a more accurate diagnosis than we could formerly and make use of that. I am sure in the future we will not make so many mistakes as we have in the past.

DR. LYNCH, CHICAGO.

It is always very easy to discuss a paper with which you thoroughly agree. It seems to me if there ever was any firm foundation for the treatment of eclampsia by the expectant method it would be dispelled by the statistics which Dr. Peterson has given us, but after all, if we believe that eclampsia is the typical type of toxic pregnancy, that is not traced to atypical toxemia, we must admit that there are lesions that are characteristic. These lesions are shown by Schmarfeldt and Konstantivich. Whether, of course, they are the essential things remain to be proven, but these women die with lesions in the liver, and if therefore there are lesions in the liver that are incompatible with life why sit around and wait further, why not interfere as quickly as you can, because we have no means of estimating the

destruction of the liver. At the present time, we have no means of estimating the sufficiency of the liver.

Now, it is of interest in relation to the type of cases brought here by Dr. Boys that there are undoubtedly three classes of eclampsia: one which is a pure eclampsia and one which comes after prodromes, and that which is the type which illustrates the name, "To shine forth suddenly." It comes on without warning, the type that you may see well yesterday and dead today, and these cases give no symptoms, their urine may show nothing, their blood pressure may show nothing. On the second hand we have the type which gives prodromes, which are the kidney type, which have manifestations of edema, which have plenty of kidney changes, they have a high blood pressure. Thirdly, we have the type which dies without any convulsions and this is a toxemia. And these three all have the same lesion in the liver, the difference is as to the lesions in the kidney.

Now, it is interesting that this type of cases, that is, the atypical type of toxemia is not an acidosis, that is, the only thing that our urinary test will show it is not acidosis, not marked or traced to the type of toxic vomiting which is acidosis, and the reason for that we do not know, but we do know that the total nitrogen falls in the toxic vomiting because the people have eaten no food, they are starving in your eclampsia: the type which dies without convulsion is eating, their nitrogen is high; while the other type is the type which people temporize with, which gives warning, which you put to bed, try elimination and everything else, merely waiting for them to blow up, merely waiting for their foetus to die.

In this connection I can but emphasize the remarks of Dr. Boys that the chloroform has no place in obstetrics, that the mortality in my own cases in my early days I am perfectly sure was augmented to 28 per cent. by the use of chloroform, and the work of Everett S. Graham in the Stark Laboratory has shown chloroform is transmitted to the foetus, that it will produce liver changes, that it is the cause of melena, that it causes a well defined, recognized circumscribed affection of the duodenum, therefore chloroform is not the drug to use.

DR. REUBEN PETERSON, ANN ARBOR.

We certainly are indebted to Dr. Lynch for his most excellent paper on this most dreaded complication of pregnancy, hyper-emesis gravidarum. I quite agree with him that almost all laboratory tests have proved most unsatisfactory as guides as to when to empty the uterus. As Dr. Carstens says, it is extremely difficult to say when we should interfere in these cases and empty the uterus. I think Dr. Lynch is right when he advocates for these cases of excessive vomiting the treatment found so serviceable for the acidosis following laparotomy cases. We have all of us, I think, seen the disastrous results which follow too long delay in emptying the uterus in such cases. I was recently unfortunate enough to have such a case. The patient had icterus and had been vomiting for some months. Although the uterus was emptied in a few moments, the patient died with all evidences of exhaustion from the profound intoxication present. Undoubtedly the same something causes the two conditions, excessive vomiting of pregnancy and eclampsia. Dr. Boys says his experience with emptying the uterus has not been very good. He must not forget that there are certain cases of eclampsia where no form of treatment will be of any avail. Even if the uterus be emptied after the first convulsion, the eclamptic toxins have caused so much damage to the liver, kidneys, brain and higher nerve centers that death will ensue in spite of everything. Such cases of eclampsia will be counted against any form of treatment of the complications. These patients die not because of the treatment, but in spite of it. But these are the exceptional cases. If the uterus be emptied early in the intoxication, as soon after the first convulsion as possible, in hundreds of cases we will find the results remarkably good. The same holds true in regard to the class of cases mentioned by Dr. Lynch, although with these cases it is more difficult to say when to interfere.

CHRONIC CYSTIC MASTITIS *

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A difference of opinion still exists among the profession regarding the pathology of chronic cystic mastitis. This name was given to the process by Koenig¹, who, as the term implies, believed it to be one of chronic inflammation with cyst-formation. Other early observers, for example, Reclus² and Schimmel-

* Read before the Section on Surgery of the Michigan State Medical Society at its 48th Annual Meeting, Sept. 4, 1913, held in Flint.

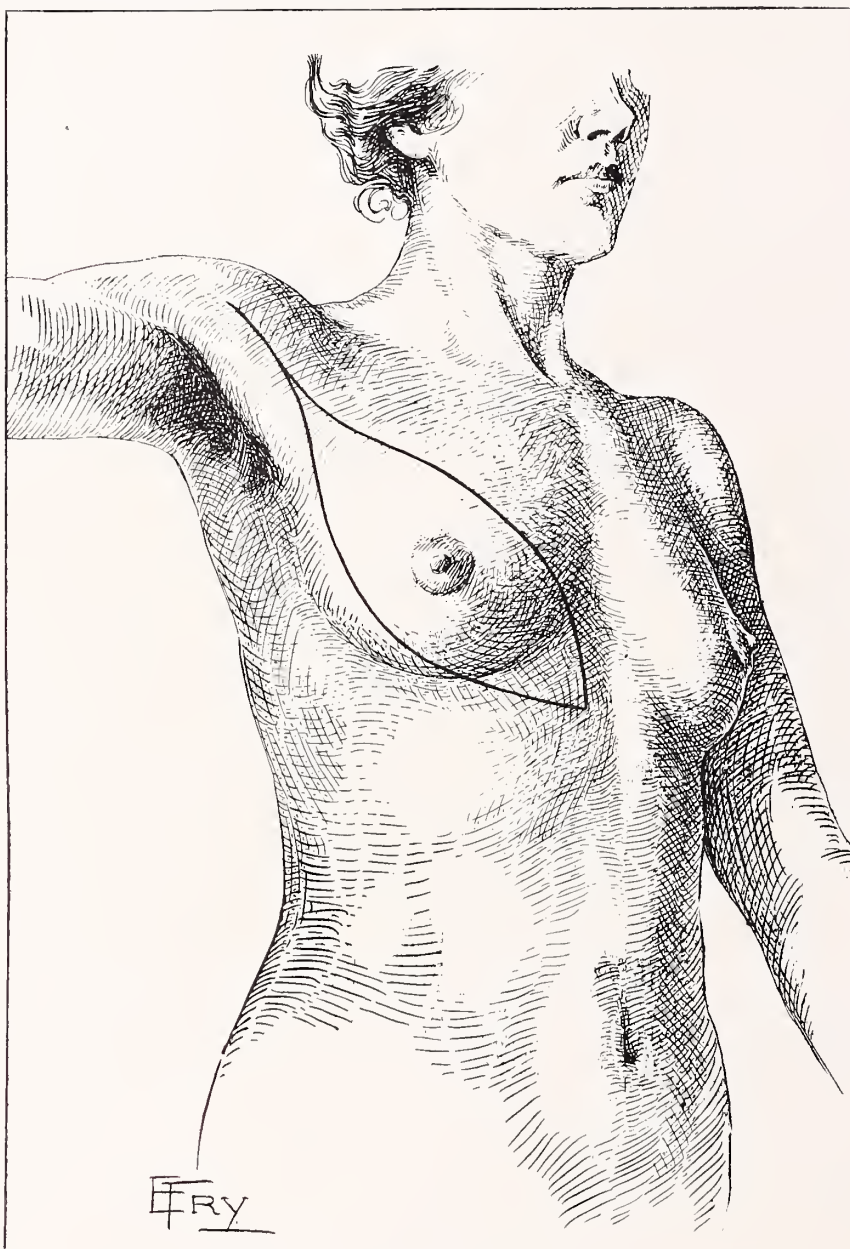
1. Koenig: *Centralblatt. f. Chir.*, 1893, XX, p. 49.

2. Reclus: *Gazette des Hopitaux*, July 7, 1877, p. 673.

busch³, believed that the cyst-formation and the cyst-degeneration or the increase in the cellular elements was the pathologic basis of the disease. Therefore, these authors have styled the condition "cystic disease of the breast" and "cystadenoma of the breast" respectively. Warren⁴ defines the process "abnormal involution" and Bloodgood⁵ defines it "senile atypical parenchymatous hypertrophy."

frequently just before or during the menopause, in the period often spoken of as the "cancer age," that is, between the ages of 30 and 60.

The pathologic picture of the condition varies so greatly that no less than twelve different descriptions have been published, each with a different name and each one describing a different arrangement of cells. The diversity of opinions on the pathology of these apparently



1. (Showing incision used in conservative operation.)

These terms embrace the names of abnormal processes. However, it is not so important to have the process correctly named as it is that we should understand its relationship to cancer.

TIME OF APPEARANCE AND PATHOLOGY.

This type of chronic mastitis appears more

similar conditions would lead us to believe that many of these pictures are different stages of one and the same process.

Various observers believe that chronic cystic mastitis is a precancerous stage and that it often undergoes malignant degeneration (Koenig, Tietze⁶, Keibel⁷, Bloodgood, etc). No one

3. Schimmelbusch: *Archiv f. klin. Chir.*, 1892, XLIV, 117-122.

4. Warren: *Jr. Am. Med. Assoc.*, July 15, 1905, 149-165.

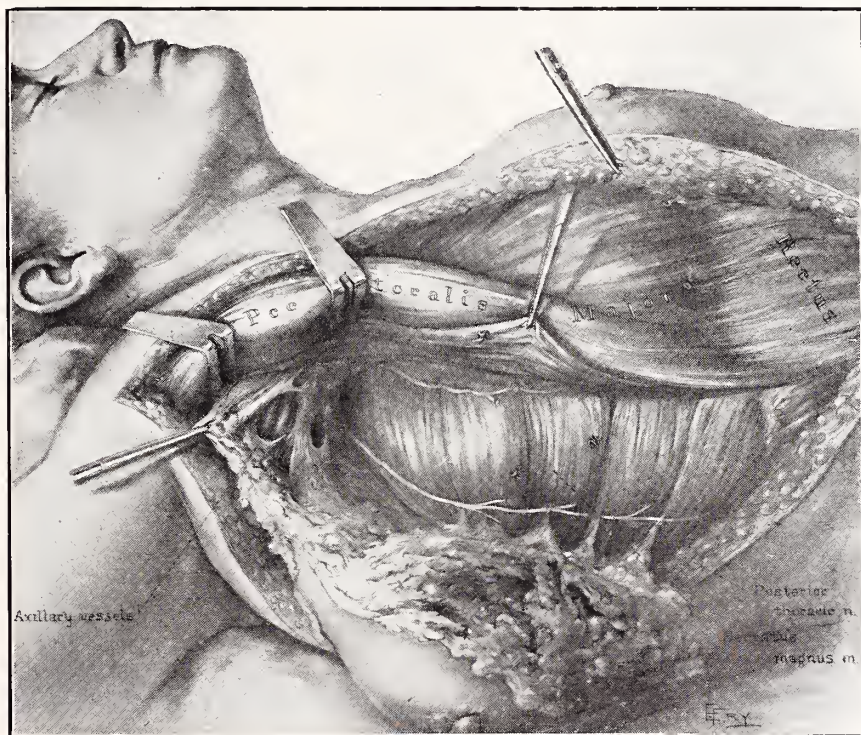
5. Bloodgood: *Jr. Am. Med. Asso.*, Aug. 6, 1904, p. 367.

6. Tietze: *Deut. Ztschr. f. Chir.*, 1900, LVI, p. 512.

7. Keibel: *Berl. klin. Woch.*, 1904, No. 30.

has as yet actually observed such development take place, though it is true that cancer is frequently seen in association with chronic cystic mastitis. MacCarty⁸ believes it is difficult to draw the line between the hyperplastic changes seen in chronic cystic mastitis and the pictures that are definitely cancer. He also believes there is no sharp line of differentiation, but that one condition merges into the other and that cystic mastitis is usually, if not always, associated with cancer. The diagnosis can be made from the irregularity and characteristics of the cells, which, so far as can be determined, are exactly the same as the penetrating cancerous cells. The diagnosis of carcinoma should not always be postponed until the epithelial-cells

Two hundred eighteen of this series were classified as chronic cystic mastitis. Of these, eleven were males, all occurring between the ages of 20 and 30 years. Two hundred and seven were females: occurring between 20 and 30 years, nineteen; 30 and 40 years, sixty-three; 40 and 50 years, ninety-six; 50 and 60 years, twenty-seven; 60 and 70 years, one; age not mentioned, one. It will be seen that a large percentage of the cases occurred in patients between the ages of 40 and 50, and that nearly all of them occurred between the ages of 30 and 60. Of the 218 cases, mastitis occurred 93 times in the right breast (5 males), 88 times in the left breast (5 males), and 30 times in both breasts. Six were not mentioned. Of



2. Showing dissection of axilla (i. e. parts accessible without removal of muscles, and gland-bearing fascia). Breast has been almost removed and shows in lower portion of picture. Pectoralis Major is shown strongly retracted in order to expose axillary space.

have penetrated the basement membrane.

We are practically convinced that every case of cancer of the breast has associated with it some degree of chronic cystic mastitis, and it is most important to bear this point in mind, even though no definite relationship between the two has been demonstrated.

STATISTICS.

Up to January 1, 1913, we had operated on 929 cases of chronic cystic mastitis and cancer of the breast in the Mayo Clinic. Seven hundred and eleven of these were definitely malignant, though in almost all there was evidence of chronic cystic mastitis in varying degree.

the 207 females, 140 had had children, 45 had no children, 3 had had miscarriages, and 22 not mentioned.

In reviewing the ages of the 711 patients with cancer, we find 79 per cent. or a large proportion of them occurred in the "cancer age," i. e., between the ages of 30 and 60. A larger proportion occurred in the cases of chronic cystic mastitis, since during that same period (30 to 60 years) there were 186 cases in the total 218, (85.3%).

HISTORY AND PHYSICAL EXAMINATION.

The greater number of patients gave a history of having had previous mastitis and nearly all of them complained of pain. The pain which occurs with chronic mastitis is usually in the

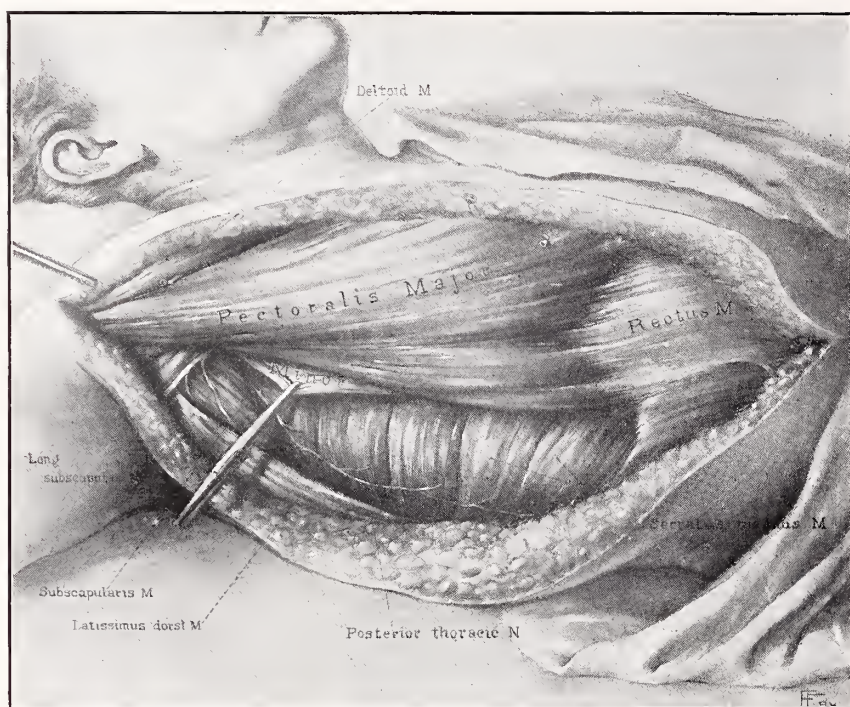
8. MacCarty: S. G. & O., Oct., 1913.

breast itself, does not radiate and is associated oftentimes with soreness and sensitiveness. It is often more marked during menstruation. The radiating pain complained of by the patients having cancer is entirely different in character.

On physical examination, if the breast is taken up between the thumb and forefinger, nodules can be distinctly felt, while if the hand is pressed flat against the breast and the breast compressed against the wall of the chest, these nodules cannot be felt. Quite the opposite is true in cases of cancer as many times the only way a small hard cancerous tumor can be palpated is by compressing the entire breast against the wall of the chest with the flat of the hand. If the breast be lifted up between

by a careful examination, we can make an accurate diagnosis of chronic cystic mastitis in a large percentage of cases. In other words, as a result of our examinations we can tell these patients that they are suffering from chronic cystic mastitis but we cannot tell them that the condition is not associated with an early cancerous process. This is particularly true if the patient consults us at an age when the condition is most likely to be malignant.

Chronic mastitis in itself is benign and except for its evident relationship to cancer and to relieve pain would require no treatment. The unsatisfactory results obtained in operating for well-defined cancer have led us to believe that progress in the surgical treatment of this disease will be made by operating in the



3. Shows conservative operation after removal of breast, gland-bearing fascia and as much of axillary fascia, fat and glands as possible without removal of muscles. Muscles have not been removed. Axillary vessels shown.

the fingers, a small hard cancer lying imbedded in the soft breast will often be missed. The individual nodules in mastitis are usually small and very tense. Pressure on the breast will sometimes force a watery or dark fluid out of the nipple. The nipples may be slightly retracted, though the breasts are always freely movable on the muscles. The nodules of mastitis are freely movable in the tissue of the breast and in this way differ from cancer, since the early process of malignancy, though having no attachment to the fascia of the muscle or skin will show definite attachment to the surrounding tissue of the breast. This attachment and infiltration about the tumor is characteristic of cancer.

By keeping the clinical picture in mind and

precancerous stage or at least in the very early cases.

TREATMENT.

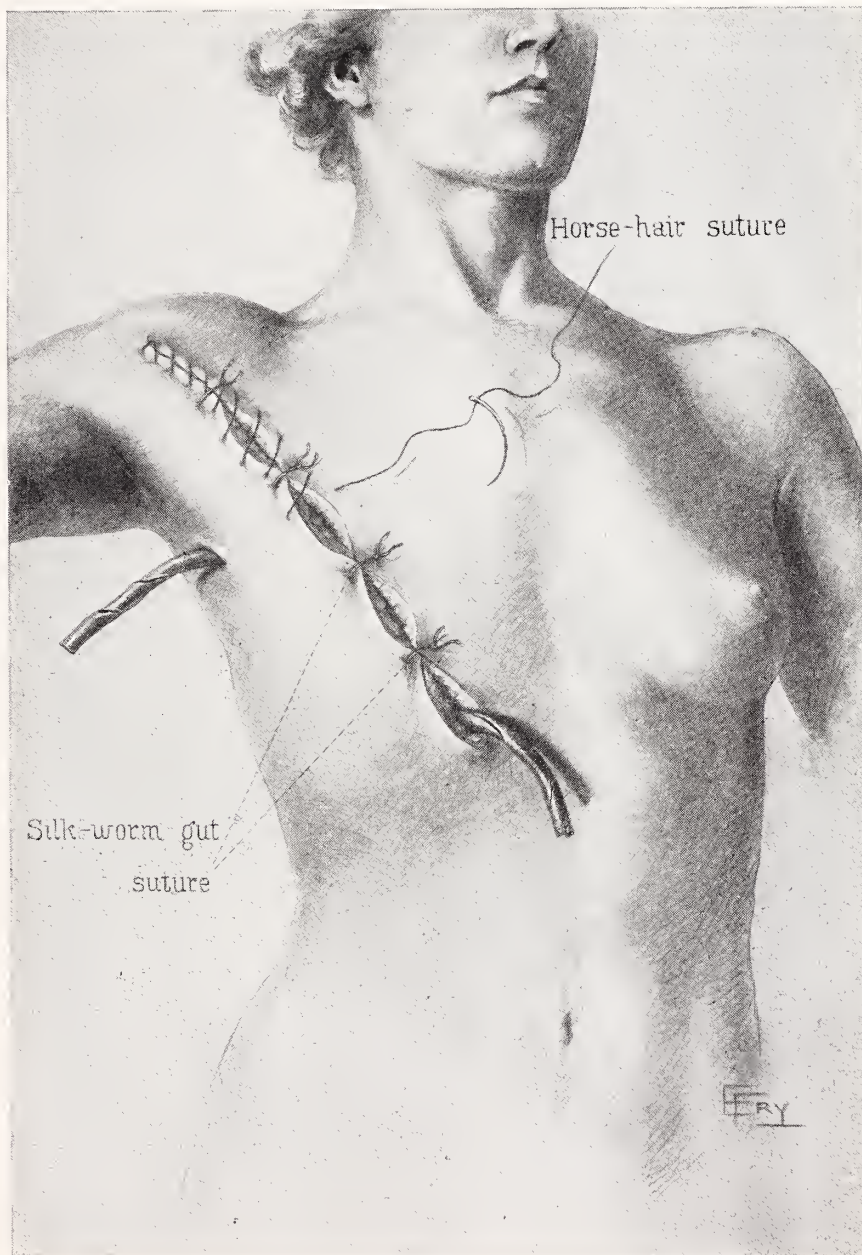
For many years we realized that patients suffering from cancer did not come to the surgeon in time to be cured. Within the last few years, however, since the laity have become aware of the fact that early operations are successful, a noticeable change has taken place in this respect. As Bloodgood has said: "This increases our responsibility greatly, because it is so much more difficult to recognize carcinoma in its early stages and because at this time we should be able to effect a cure in a large percentage of cases." Improved operative technique and more extensive procedures in

advanced cases have failed to improve the results.

Knowing that practically every case of cancer of the breast has associated with it some degree of chronic cystic mastitis and that many of the best authorities believe the condition occurring in women of the cancer age will become malignant in more than half the cases, we con-

Diffuse, painful, nodular enlargement of both breasts in young individuals should not be operated on unless a recent change has occurred in some one of the nodules and then this nodule should be excised for microscopic diagnosis before doing a radical operation.

In view of the fact that medical treatment oftentimes does not relieve these patients, it



4. Shows line of closure, sutures and two drainage tubes.

clude that this condition in all probability is a pre-cancerous stage and that it should be treated as such.

Cancer of the breast has not been observed in the young person under 27 years of age having a bilateral painful mastitis commonly seen in young people. Cancer in these young individuals usually occurs as a solitary nodule and more often as a degenerating fibroadenoma.

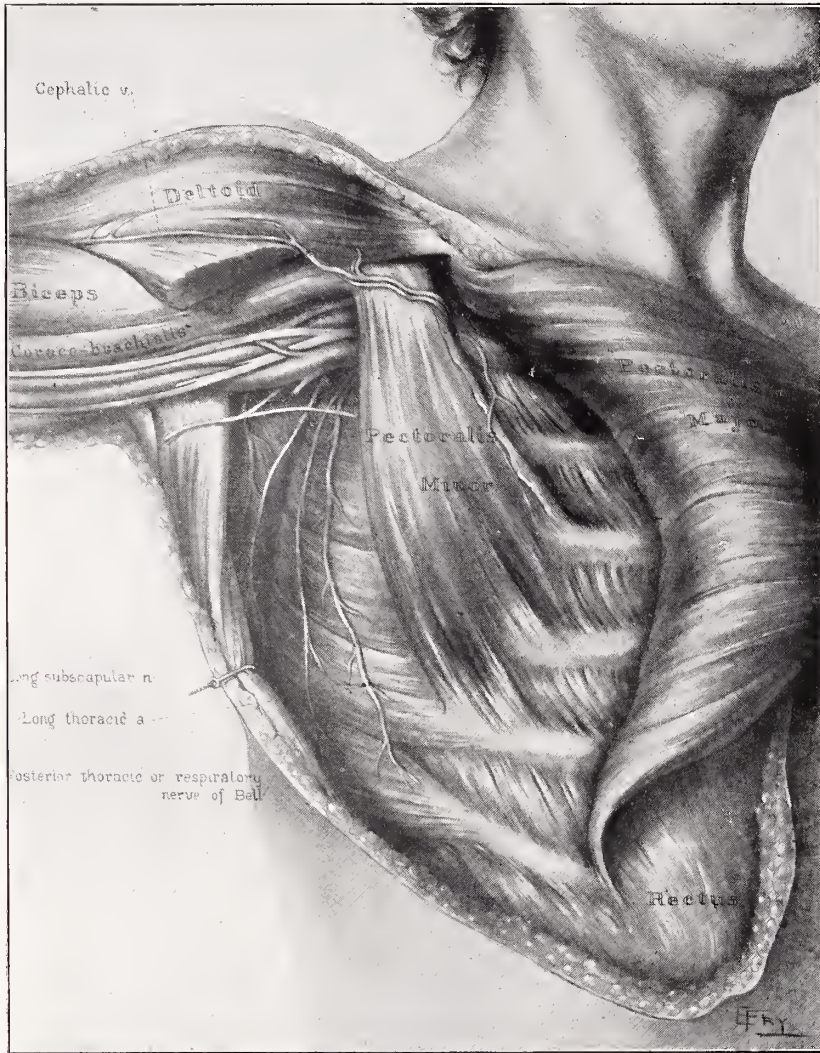
may occasionally be deemed advisable to excise a piece of the breast, preferably by the Warren operation, to relieve their suffering. The result is apt to be rather unsatisfactory, since other nodules may develop and take on the same symptoms. Occasionally it may be necessary to amputate the entire breast because of pain.

Our responsibility would seem to be greater

in regard to those patients coming to us between the ages of 30 and 40. While cancer is not common at this time, yet it occurs in a considerable percentage of the cases. A radical operation for all is the surest method, but in doing this we would undoubtedly operate on many unnecessarily, removing the breast at a time when it is functionally active. It would seem a better procedure in these cases to remove for microscopic investigation the part of the breast which appeared most affected and

incurred considerable risk and promised little or nothing at a time when the gland was lactating and physiologically active. The radical operation has been performed several times when there was doubt in the pathologist's mind as to whether or not the specimen was malignant and it would seem to be the advisable procedure in doubtful cases.

In patients between the ages of 40 and 60, our responsibility is perhaps somewhat lessened since at this time the important function of the



5. Anatomical drawing presented to show difference between conservative and radical operations. Breast has been removed. Pectoralis Major muscle has been divided and reflected. Axillary structures show except where covered by Pectoralis Minor, which has been left undisturbed.

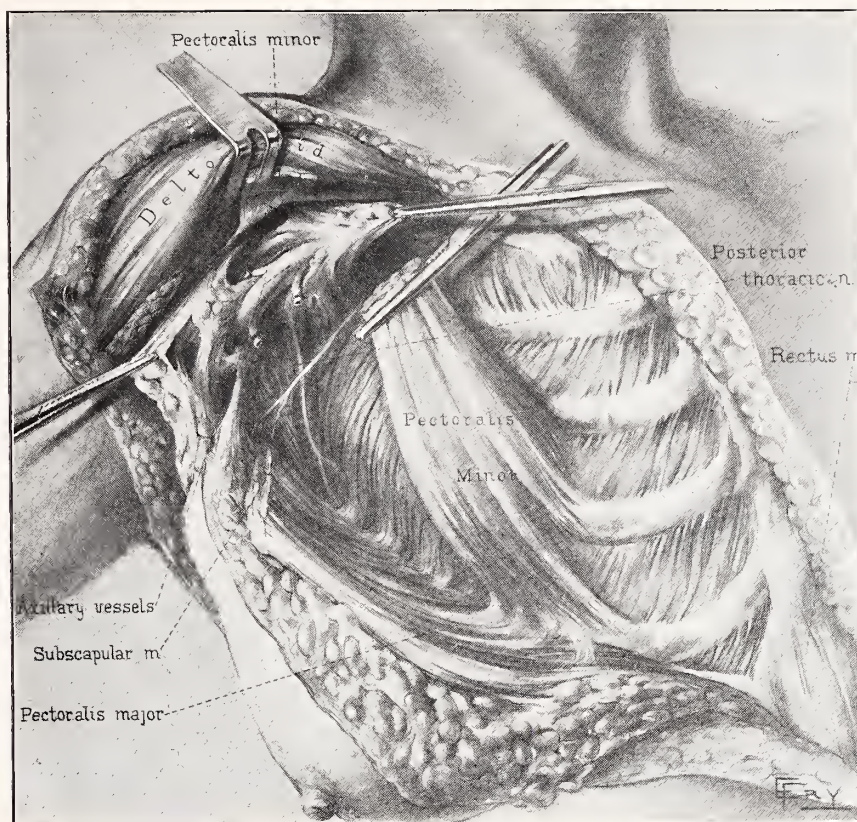
abide by the pathologist's diagnosis, doing a radical operation at the time if necessary. We have followed this plan for many years in several hundred operations on the breast. In only one instance was the cancer missed. This was a case of double suppurative mastitis in a lactating breast; cancer was not suspected nor diagnosticated, probably because no part of the malignant tissue happened to be removed. A radical operation was contra-indicated because of the existing infection and sloughing which

breast has ceased and also we have good authority for believing that a certain percentage of the cases change to malignancy. Chronic cystic mastitis can usually be definitely diagnosed clinically during this period.

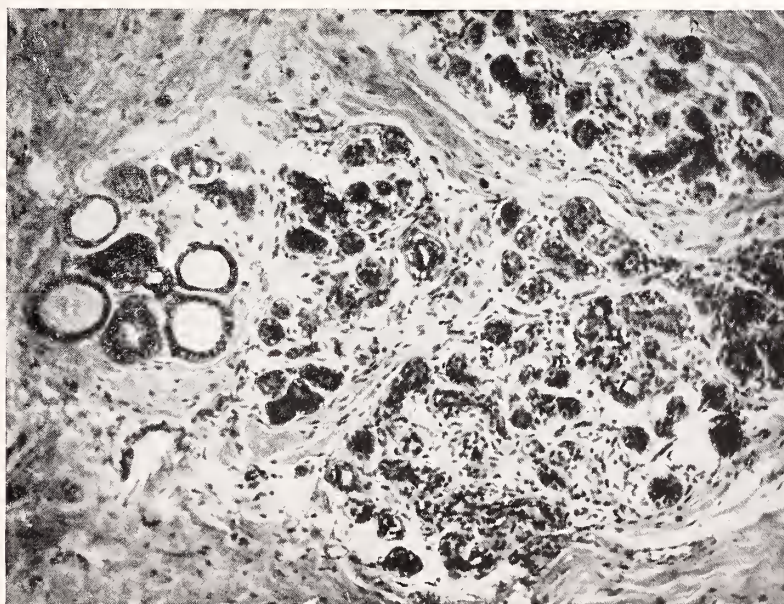
Several conditions must be taken into consideration regarding the treatment of this disease when it occurs between the ages of 40 and 60 years: (1) Cystic mastitis is associated with definite malignancy; (2) the mastitis is definite but the malignancy is uncertain; in either case

it would seem best to perform the radical operation for cancer; (3) chronic cystic mastitis in

we are dealing with a condition usually associated with cancer and yet, according to the



6. Dissection from life. Presented in order to show enormous difference in exposure of axilla in cases where muscles are removed. Pectoralis Major has had its fibers separated close to deltoid and has had attachments to wall of chest severed. It lies, with breast in lower part of picture. Pectoralis Minor has been cut near its upper attachment, thus greatly increasing exposure of axillary space. Forceps hold a gland and some fascia which lay beneath the minor muscle.



7. Showing almost normal breast tissue with few scattered round cells and perhaps slight increase of fibrous tissue. Several slightly dilated acini show in left end of picture.

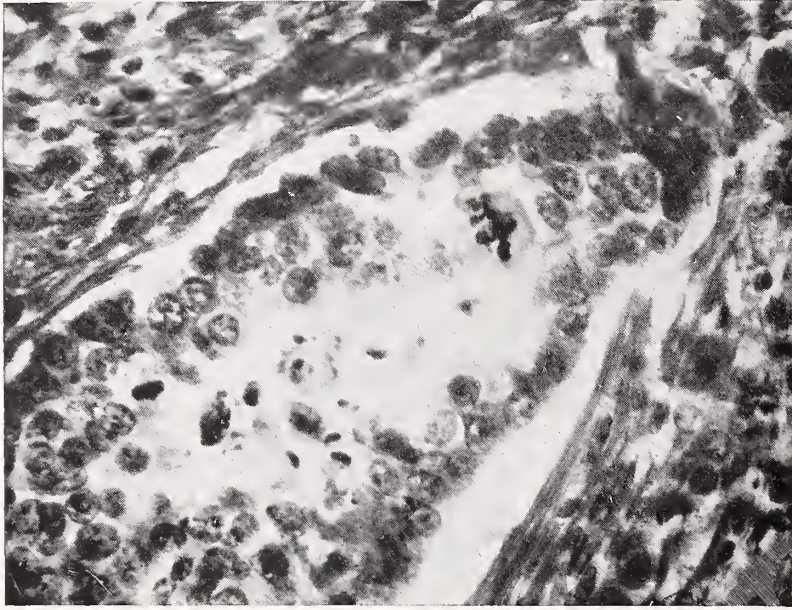
which the pathologists are unable to define malignancy and in which there are no areas suspicious of cancer. In this case we realize that

present status of pathologic knowledge, it is not malignant. A partial amputation of the breast in these cases will not relieve and in many in-

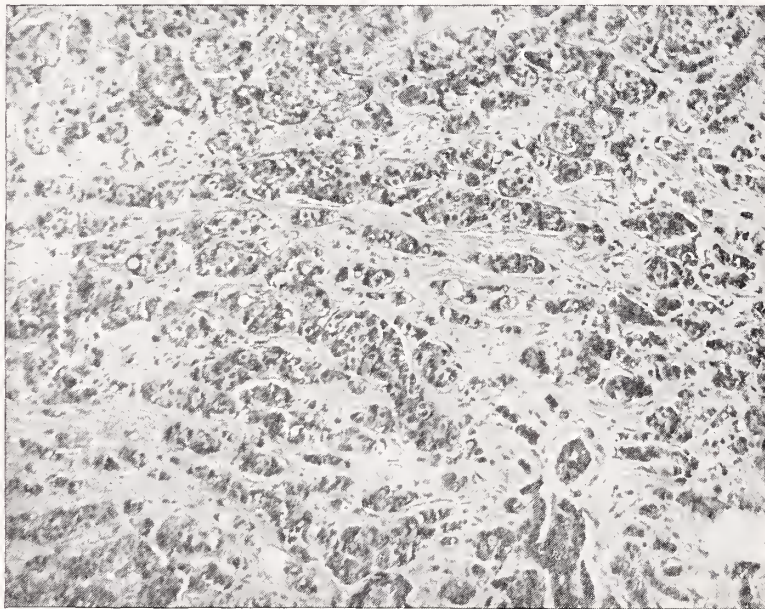
stances the same process will start up in the remainder of the gland—for this reason the entire gland should be removed. The axillary fascia with the glands can be removed without additional risk or inconvenience to the patient and this should be done since it is the avenue

operating on the malignant case, it would seem best to give it due consideration in definite benign conditions.

In 211 of our 218 cases the conservative operation was performed and in none of the cases has there been evidence of malignancy after-



8. Showing cystic mastitis with desquamation of inner row of cells in acini and great increase of fibrous tissue.



9. Schimmelbusch's disease; abnormal involution or senile parenchymatous hypertrophy; adeno-cystic disease; marked increase of cellular element and of fibrous tissue.

traversed by cancer cells. Removing the muscles, as is done in operating for cancer is a more severe procedure and more difficulties occur during convalescence. At times permanent limitations of motion and swelling in the shoulder and arm occur and while this interference in function should not be considered in

ward. In the remaining seven cases of doubtful malignancy, the radical operation was performed.

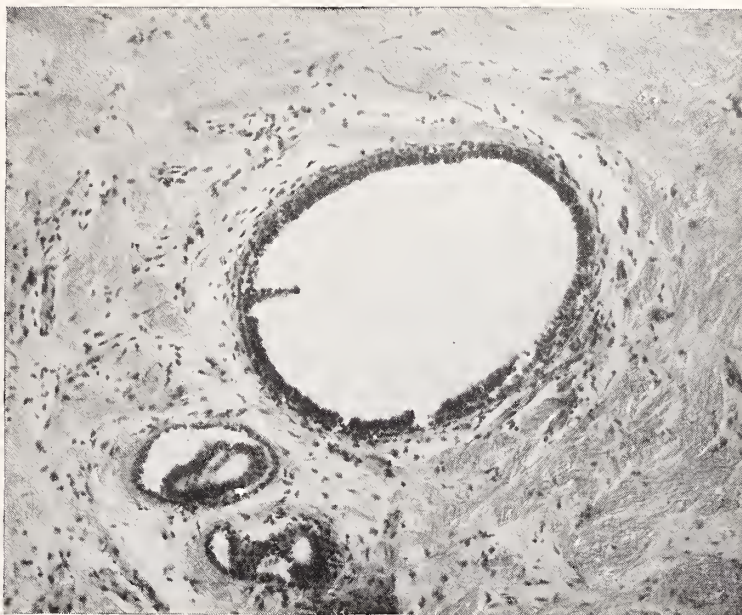
CONCLUSIONS.

In conclusion it may be said: (1) I believe chronic cystic mastitis has a definite relation-

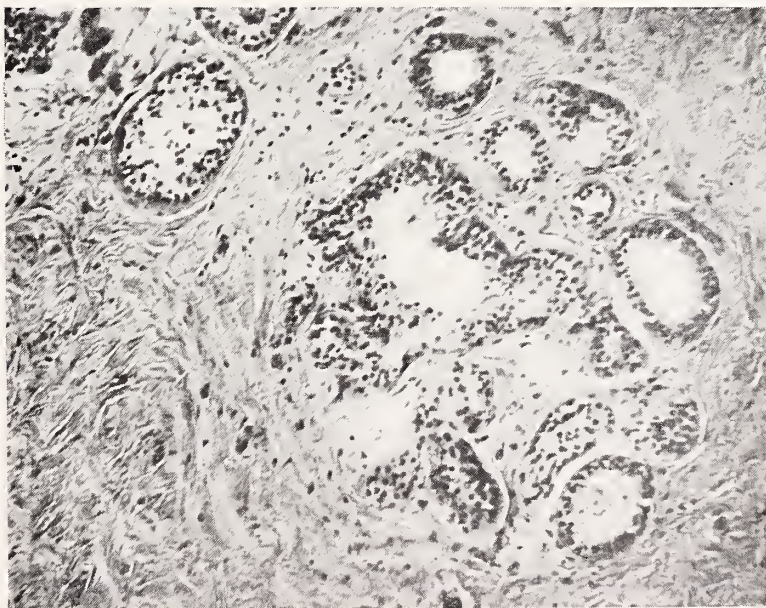
ship to cancer of the breast and in many instances may be considered a precancerous condition. (2) In cases suspicious as to malignancy, a radical operation for cancer should be performed. (3) In cases of chronic cystic mastitis that cannot either clinically nor patho-

the old term that Gaines gave to this disease is wrong.

In early cases where you see this disease occurring in women along about 30 to 35 years of age it has been my experience, in these cases, that they are then to be looked after, and it seems to me that the conservative operation is the operation to do. In these cases I have done, in some instan-



10. Same under high power, showing a single acinus with cells enlarged. Several Karyo Kinetic figures show and, in the center, some destroyed cells.



11. Typical carcinoma. Rows of carcinoma cells. Much increase of fibrous tissue.

logically be diagnosed as to malignancy, the conservative amputation with removal of the gland-bearing fascia is the operation of choice.

DISCUSSION.

DR. DEAN LEWIS:

Mr. Chairman, this is an exceedingly valuable paper. I think it has been definitely settled that

ces, Warren's operation, dissected the breast, up off the pectoralis major muscle and removed the cyst from below. I have been much disappointed in this operation. I find that even after Warren's operations cysts have appeared in other places.

Dr. Judd has had a large experience from having viewed a number of cases, and is able to draw different conclusions as to the character of the disease; and his observations of course are very valuable.

DR. DODGE.

Mr. Chairman, I wish to express my appreciation of the very excellent paper. I fully agree with the method of treatment, in cases of chronic cystic mastitis. It has been my experience as far as the removal of the breast is concerned, in early stages, you remove some of the cyst, and in a few months you will have the patient come back with a recurrence of the cysts throughout the breast. So I think that the removal of the breast is necessary in those cases.

I am very glad that we not only have had Dr. Judd, but so many distinguished surgeons this year from various parts of the country. I think we have had a very enjoyable session, and we are in deep gratitude for them for honoring us with their presence. As Dr. Judd has so well expressed, even in the mind of the pathologist, after removing cysts there was always some doubt whether they were malignant or not malignant. Frequently people come to your office with a little trouble in the breast and ask you if it is a cancer or not. You cannot say. But I think if you see a person, over thirty-five years of age coming to you with an enlargement of the breast, even if it is not a cancerous condition, it ought to be out. I have seen some disastrous effects from these conditions. I saw a lady about two years ago with chronic cystic mastitis, she was about thirty-six or thirty-seven years of age, and she became pregnant and nursed the child, and three or four months after came back with a double carcinoma—showing that it is very dangerous. I remember a while ago some celebrated surgeon advocated tapping them with a needle, and if he found fluid, then he took them out, and if not he left them there. But I think even if the fluid is not there they ought to be removed.

DR. VAUGHAN.

Mr. Chairman, I have been very much interested in this most excellent paper. There is one thing that I have a little hesitancy about saying, because it seems to be generally conceded, and it is a very important thing at present, and I hate to refer to it—and that is upon operating in these cases—the precancerous stage. What is the precancerous stage? We see very few of them in the precancerous stage. The physician who takes care of the patient sees very few cases before carcinoma is actually there. That is especially true of the type that departs from the small adema. Now, we operate radically on cases of very small tumors; and very shortly afterwards we find a recurrence. You take another case with the tumor as large as your fist, or your two fists and you remove that rapidly, and in that case it does not recur for three or four or five years. I have had that happen several times. What is the explanation? In one case you get at it early, and still you have an early recurrence; in another case you get at it late, and still you get no recurrence for some considerable time. If you make blood counts in those cases you will find invariably that the case that does not require as large a mononuclear leucocyte count or a low mononuclear leucocyte—the case that does not require as high a polymorphonuclear leucocyte count. In other words, nature herself is preventing that case from recurring. It is not the extent of your operation; it is not the radical way in which you perform the operation. It is nature herself. The tendency is in every case of cancer for the body to cure it just as it is in an infectious disease. By experiment we can prove that we can produce a temporary cessation of cancer by injecting a small amount of cancer serum. If we inject a larger amount, or increase

the large amount of leucocyte, we kill our animal. The animal is sensitized; it is sensitized in from thirty-four to thirty-six hours. The reason we do not cure cancer by operation is because nature does not help us; the sensitization is not of long enough duration.

DR. JUDD.

I have not anything further to say except that I do not think any of us are very enthusiastic about operating upon cancer. I always think as Dr. Cooper said, we are not satisfied by the surgical work on cancer; still at the same time it is the best treatment we have and it is the only treatment that has shown results; so that we must continue in it, and be more or less enthusiastic about it until something better is shown us.

X-RAY EXAMINATION OF THE LUNGS*

A. W. CRANE, M.D.

KALAMAZOO, MICH.

A routine and systematic plan of examination is desirable. The x-ray examination should be the final one. The physical examination by inspection, palpation, percussion, and auscultation should be no less thorough because the Roentgen ray is to follow. If there be a sputum it should be examined in every case. The examination should be begun with the fluoroscope. If there be a condition present which, on account of its interest or its obscurity, is worthy of a skiagraphic record or delineation, then a plate may be exposed. The fluoroscope is superior to the single skiagram in the examination of the lungs. But a pair of stereoscopic plates of the chest endows the observer with a diagnostic vision incomparably superior to that of any other method.

POSTURE.

It is best to examine the patient first in a standing position on account of the possible presence of partly-filled cavities or pleuritic effusions. A front and back view of the upper, middle and lower thirds of the lungs may be taken. We should compare like parts of the two sides, and different areas of the same side. We should observe the heart-shadow and the diaphragm-line. We should notice if any unusual condition exists, such as aneurysm or tumor.

FLUOROSCOPE.

A familiarity with the fluoroscope appearance of the lungs in health is an unqualified necessity to the examiner. With the fluoroscope, practice makes perfect; precisely as in auscultation and percussion, or with the microscope and the ophthalmoscope. The eye should be refreshed by a frequent view of healthy structures.

In studying the lungs it makes a difference whether we take a front or a back view. This difference depends upon the fact that the closer

* Read before the Section on Medicine, 48th Annual Meeting, Michigan State Medical Society, Flint, Sept. 4-5, 1913.

any structure lies to the fluoroscopic screen, the clearer the shadow. In front, the ribs being cartilaginous, show but faintly; while the ribs and shoulder blades at the back, being distant, are also faint, so that a fairly unobstructed view of the lungs may be obtained. The sternum and vertebrae form a dark column down the middle. From this central column, the heart extends to the left, lying in constant motion upon the diaphragm; while the diaphragm on each side forms an arch like a quarter circle, rising and falling with each breath. The boundaries at the sides and apices of the lungs are easily discernible because the chest-wall is viewed edgewise and is thus relatively thick.

When the patient is turned about and the fluoroscope is placed against the back, the ribs are clearly visible, so that the lungs must be viewed through the interspaces. The broad, scapulae lying close to the fluoroscope screen cast shadows which also interfere with the examination. Nevertheless, the back view often gives the best image of a diseased area because the front ribs are both cartilaginous and distant, thus being largely eliminated as disturbing factors.

The examination of the lungs by the x-rays should be done by preference in the evening. Pulmonary fluoroscopy in the daytime is not a success unless the room can be made absolutely dark. Curtains and blinds are rarely sufficient. It is surprising how great a difference a little daylight makes in such an examination. It is the sensitiveness of the retina which is the real consideration. If for any reason the examination must be made in the daytime, the physician should first rest his eyes in the darkness. Fifteen minutes is not too long a time; indeed it may often be insufficient for the best results.

In disease the fluoroscope chest-picture is changed. Shadows of varying density may appear; abnormally clear areas may develop; the heart-line or diaphragm-line may become displaced, obscure, or invisible; and the motion of the diaphragm may be restricted or reduced to zero. These appearances must be interpreted in any given case to mean infiltration, consolidation, cavity, effusion, infarct, etc.; and these conditions must be combined and interpreted to mean tuberculosis, pneumonia, pleurisy, edema, etc. The ultimate factors of a fluoroscopic examination, then, are extremely simple; transparency, shadow, and motion. Upon these three rests the most elaborate examination by the x-rays.

INTERPRETATION.

As we reduce fractions to a common denominator, we may reduce light and shadow to the common terms, increased transparency and decreased transparency. Either increased or decreased transparency may differ in intensity,

position, form, and extent. The third factor, motion, may likewise differ in character and extent and in the method by which it is elicited.

When we apply these qualifying factors to the interpretation of chest-images the problem of our three simple factors, like the problem of three bodies in astronomy, becomes less simple. Their interpretation requires experience. However, a good medical education combined with a general acquaintance with the x-ray examination, will enable the average man to predict with reasonable certainty what may be found on the skiagram in any given pulmonary disease. In those diseases in which there is an increased amount of air in the lungs on one or both sides, we would expect to find with the fluoroscope an increased transparency of one or both lungs. This is discovered to be a fact in asthma and emphysema. In those diseases in which there is a diminished quantity of air in the lungs we would expect to find under the x-ray, a diminished transparency. This we find to be true in congestion, pneumonia, tuberculosis, and many other diseases. Focal diseases, such as abscesses, infarcts, and tumors, would be expected to cast shadows comparable to their size and density.

It is the density of a focus which determines the density of the shadow. There must be more substance in the path of the ray if there would be decreased transparency. Lack of air alone in the lungs would not account for this decreased transparency during expiration. The settling-together of the lung-tissue in expiration contributes something to lung-density, but, as Williams suggests, there must also be an increased quantity of blood and lymph in the lungs to account for the change mentioned. Likewise in any point of inflammation there is an increased blood supply. The tissues may be soaked with serum and infiltrated with leucocytes. The air-cells even may be filled with exudate, and thus the density of a part is increased, and its transparency under the x-rays decreased. A substance may be transparent to ordinary sight and cast shadows under the x-rays. Glass and water are examples. Density, with the x-ray, is the criterion. Clear serous effusions cast black shadows on the fluoroscopic screen.

When the x-ray examination is preceded by the physical examination an opportunity is given to compare and supplement the results one by the other. The end-result of roentgenography must agree with the end-result of the physical examination, if the phenomena observed are correctly interpreted. But the information elicited by inspection, palpation, percussion and auscultation is not in each case co-extensive with the information gained by the fluoroscope, and x-ray plate.

By palpation we may feel the rhonchi, the

friction fremitus, and the vocal fremitus. The rhonchi and the friction fermitus denote conditions which give no x-ray sign. The vocal fermitus is increased over consolidated areas and decreased over emphysematous areas. In this it agrees exactly with skiascopy. If, however, we draw the conclusion that whenever the vocal fremitus is increased we should find an increased density in the fluoroscopic shadow, and *vice versa*, we will be disappointed. In pleuritic effusions we find the vocal fremitus decreased or absent, but we find the fluoroscopic shadow dense and unmistakable. The same is true of pleuritic thickenings, of filled cavities, and of consolidations with occlusion of the large bronchi. Moreover, the vocal fremitus is increased over dense-walled cavities which would give a ringed area of light-reflex upon the fluoroscopic screen. In these states it could be said that the results of palpation are not parallel with those of roentgenography. It is simply that the narrow limits of palpation must be kept in mind, and only its positive data considered.

Between percussion and skiascopy the comparison is more satisfactory. The same factors which determine the x-ray shadows, also determine the character of the percussion note. The results of percussion and skiascopy must agree, allowing for the personal equation and for the superior delicacy of one or the other in different hands. In my experience they do agree, except that skiascopy is the more delicate and precise method.

The field of auscultation is larger in some directions than that of pulmonary skiascopy. Affections of the bronchial tubes denoted by rales, and inflammations of the pleura denoted by friction sounds, are beyond the province of the x-rays. Auscultation is a most delicate method of examining the thorax, and the data which may be elicited are numerous. But their interpretation is often a matter of confusion or doubt. Changes in the vesicular breathing, bronchial breathing, amphoric breathing, broncho-vesicular breathing, rales, large, small, dry, moist, sonorous, sibilant, crepitant, sub-crepitant, mucous or bubbling; friction sounds, bell-tympany; succussion metallic tinkling; bronchophony; pectoriloquy; egophony; Wintrich's change of sound; Williams' tracheal tone; Gerhard's change of sound; Friedreich's change of sound; and Leitz's metamorphosing; all of these suggest the resources and difficulties of auscultation.

Roentgenography gives more simple and direct data. The apparatus which generates the Roentgen rays may be complex, but there is nothing unduly complicated about shadows on the fluoroscopic screen. The shadow of a bottle partly full of water gives more simple and more direct evidence of its existence and character

than do the sounds which may be elicited from it. The margin of possible error is wider for the stethoscope than for the fluoroscope. But when the signs are correctly elicited, correctly recognized, and correctly interpreted, the results of auscultation must agree with those of roentgenography.

Roentgenography is not compared with inspection because it is itself inspection. It is an extension of our faculties of sight. It is, therefore, a part of the physical examination and not a method to supplant it. Although it bears comparison with the combined results of palpation, percussion, and auscultation, it should not be considered as a rival, but as an ally. By Roentgen's discovery inspection is now raised to the first rank of our diagnostic resources. We base a diagnosis, not upon the results of one, but upon all the lines of physical examination. Auscultation is not alone relied upon. For the same reasons skiascopy should be interpreted in conjunction with the physical signs and the clinical symptoms. We never need, like Paganini, to execute our score upon a single string.

CHART I.

ROENTGEN EXAMINATION

LUNG and PLEURAL SAC:

Increased transparency

1. General

- a. Bright or light reflex
 1. Pneumothorax
 2. Emphysema
 3. Compensatory emphysema

2. Local

- a. Bright or light reflex
 1. Empty cavities
 2. Pneumothorax
 3. Bronchiectasis

Decreased transparency

1. General

- a. Light shadow
 1. Generalized pleurisy
 2. Congestion of lung
- b. Dark shadow
 1. Edema
 2. Cirrhosis
- c. Black shadow
 1. Effusion to apex
 2. Total consolidation

2. Local

- a. Light shadow
 1. Infiltration
 2. Thickened pleura
 3. Atelectasis
- b. Dark shadow
 1. Partial consolidation
 2. Small filled cavities
 3. Pleuritic exudates
 4. Small tumors
 5. Infarcts
- c. Black shadow
 1. Consolidation
 2. Pleuritic effusions
 3. Gangrene
 4. Large filled abscess
 5. Large tumor
 6. Large hydatid cyst

Motion

1. General
 - a. Changes in density
 1. During respiration
2. Local
 - a. Changes in form
 1. Of half filled cavities
 2. Line of thickened pleura
 3. Effusions

DIFFERENTIAL DIAGNOSIS.

Differential diagnosis in skiascopy is a matter of transparency, shadow, and motion. A transparency indicates a large, empty cavity or a large pneumothorax. If it is a cavity, the transparency may be centrally located and wholly surrounded by a dark or black shadow, or it may be peripherally located and only partly surrounded. The limits of a large cavity are never sharply marked unless on the lower side, when partly filled with sputum. If it is a pneumothorax, the transparency is peripherally located and usually larger than in the case of cavity. If it exists without the presence of pulmonary shadows, the diagnosis is clear, because cavities are always associated with some consolidation. If, however, consolidation does occur with pneumothorax, the outline of the lung will be observable. A local pneumothorax from bronchial communication with the pleural sac and from circumscribing adhesions, could not be distinguished from a peripheral cavity, especially if it occurred over the front or back area. Its position, however, whether front or back, could be determined. The closer any object lies to the fluoroscopic screen the cleaner the image.

A circumscribed moderate transparency indicates a small cavity; a large cavity nearly full, a small pneumothorax, a greatly dilated bronchus, or an emphysema. If it be a small cavity, it will lie in the midst of a dark or black shadow, and may be called a light reflex, because it is in contrast with its surroundings. It may be encircled by a narrow ring of dark or black shadow if the walls are calcified. This is a healing process that can occur in a small cavity only. Why the calcareous thickening of a spherical cavity will cast the shadow of a ring is easily understood. The x-rays traverse more substance in passing through the edges of the rim than in passing through the middle.

If it be a large cavity nearly full, the transparency will rest upon a dark or black circumscribed shadow, unless the surrounding consolidation is so dense as to obscure the shadows of the mass of sputum. If the patient is re-examined on the table, the cavity may empty and become a large bright transparency or it may nearly disappear, because the mass of sputum has come to lie in line with the empty space. If a faint reflex be observed without the presence of pulmonary shadows, it is likely

due to a dilated tube in bronchiectasis. A dilated bronchus with consolidation could not be distinguished from a small cavity, unless a longitudinal form were to give a clue. A small pneumothorax, allowing a layer of air to surround the lung, would give a general light reflex, which would be distinguishable from a true emphysema by the profile of a lung made denser by partial collapse. In both cases the movements of the diaphragm would be restricted, its line low and its form flattened. But an emphysema is bilateral, unless there is some disease of one side to produce a compensatory condition on the other. In the case of pneumothorax, the disease would be on the same side as the general transparency. Hydro-pneumothorax or pyo-pneumothorax would give the same images as pneumothorax, except that we would have the dense shadows of effusions at the base. By changing the position of the patient, the relative position of the shadows and transparencies would be changed.

A light shadow may mean an infiltration, a congestion, an atelectasis, or a thickened pleura. Between a tuberculous infiltration, a simple focal congestion, and an atelectatic area, there is no shadow-distinction. A thickening of the pleura may sometimes be differentiated from these three if its shadow be plainly visible, say from the front, and nearly or quite invisible from the back. But an infiltration or small consolidation lying close to one side would simulate this appearance.

A dark shadow indicates a partial consolidation, a small tumor, an infarct, or a cirrhosis. In the case of edema the dark shadow is general and of even density. A general cirrhotic lung would give a less even shadow, and would be accompanied by a marked displacement of the heart. Other physical conditions easily differentiate these two. A focal cirrhosis, an infarct, and a small tumor, may give shadows of similar character, but a cirrhotic focus is most likely to be located in the apex; a tumor most likely near the hilum; and an infarct most likely in the periphery of the lung. A partial consolidation has very indefinite borders shading out into normal lung tissue. A small filled cavity is associated with some consolidation, and will appear as a dark spot in the midst of a dark shadow.

A black shadow may result from a consolidation, gangrene, large filled abscesses or cavities, large tumors, large hydatid cysts, and pleuritic effusions. The last is distinguished by lying at the base of the thoracic cavity, by obscuring the diaphragm-line, by a more or less level upper border, and by being shifted when the patient's position is changed. The other conditions may not be separable by an x-ray examination, although their boundaries may be mapped out.

CHART II.

ROENTGEN EXAMINATION

DIAPHRAGM

Visibility

1. Increased
 - a. Inspiration
 - b. Emphysema
 - c. Pneumothorax
2. Decreased
 - a. Expiration
 - b. Edema
 - c. Congestion of the lower lobe
 - d. Consolidation of lower lobe
 - e. Thickened pleura at base
 - f. Pleuritic effusion or exudate
 - g. Empyema

Position

1. Low
 - a. Emphysema
 - b. Asthma
2. High
 - a. Cirrhosis
 - b. Tuberculosis
 - c. Abscess of liver
3. Difference of the two sides

Form

1. Arched
 - a. When high. See above
 - b. Abscess of liver
2. Flat
 - a. When low. See above
3. Irregular
 - a. In diaphragmatic hernia
 - b. Hepatic abscess beneath diaphragm
4. Difference of the two sides

Motion

1. Ordinary respiration
 - a. General range
 1. Restricted
 - a. Tuberculosis
 - b. Pleurisy
 2. Exaggerated
 - a. Compensatory Emphysema
2. Forced respiration
 - a. General range
 1. Restricted
 - a. Tuberculosis
 - b. Pleurisy
 2. Exaggerated
 - a. Compensatory emphysema
 - b. Upper half
 1. Restricted
 - a. Emphysema
 - b. Asthma
 - c. Pleurisy
 2. Exaggerated
 - a. Compensatory emphysema
 - c. Lower half
 1. Restricted
 - a. Tuberculosis
 - b. Pleurisy
 2. Exaggerated
 - a. Compensatory emphysema

THE DIAPHRAGM.

The diaphragm cannot be disregarded in skiascopy of the lungs. Its visibility, position, form and motion are functions of the highest importance in estimating the extent and sever-

ity of pulmonary disability. It is the vital barometer of the lungs, and may give the first signs of coming clouds above.

Its visibility depends upon the contrast which its heavy shadow makes with the thin shadow of the lung. It is a dome of muscle which rests upon the liver on the right and is visible across the whole extent. On the left it rests upon the stomach and is visible across the outer half, the inner half being obstructed by the shadow of the heart. In forced inspiration, however, the diaphragm becomes also visible below the heart. The shadow-line of the diaphragm becomes more distinct in forced inspiration because the lungs contain more air and because the diaphragm, being flatter, interposes more tissue in the path of the rays. Conversely, the diaphragm-lines become less distinct in forced expiration, because the lungs contain less air, and because the diaphragmatic dome, being more arched, interposes less tissue in the path of the rays.

The diaphragm becomes very distinct when there is an emphysema or pneumothorax without effusion. But emphysema is either bilateral or else compensatory and attended by disease on the opposite side. On the other hand, pneumothorax would show the shadows of a partially or wholly collapsed lung. The diaphragm may become indistinct in edema, hypostatic congestion, partial consolidation of the lower lobes, or thickened pleura around the base. But, in edema there is a general shadow of even density. In congestion, partial consolidation and thickened pleura at the base, the upper areas of the lung may be normal. But these three are not separable on physical grounds alone.

The diaphragm becomes invisible when there is an effusion or a consolidation of the lower lobe. But with effusion the outline of the shadow may be easily shifted, and when the patient is placed upon the examining table with the head lowered, the diaphragm comes into view. If the entire lung is consolidated or if the effusion reaches to the apex, the conditions may be indistinguishable without the use of the hypodermatic needle.

The position of the diaphragm in health is variable. The mean in the ordinary respiration is, for the right side, the lower border of the fifth rib, and, for the left side, the upper border of the sixth rib. The left side is normally about $1\frac{1}{2}$ cm. lower than the right. In disease of one side this difference is exaggerated. If the right lung is affected by tuberculosis, the diaphragm on that side will be higher than usual, while on the left it will be lower than usual, on account of the compensatory changes. In emphysema the diaphragm lies very low, in cirrhosis very high.

The position of the diaphragm largely de-

termines the form. It is flattened when low, and arched when high. In diaphragmatic hernia the form is irregular.

It is the motion of the diaphragm with which we are chiefly concerned. We may recognize the range of movement in ordinary and in forced respiration. By marking the middle point in ordinary respiration, we may observe the upper and the lower half of a forced respiration. As a rule, in health the range of ordinary and forced respiration is slightly greater on the right side than on the left. A restriction in the range of motion is a sign of some disablement. It is most likely to mean tuberculosis, pneumonia, or pleurisy. But it may mean almost any affection of the lungs or mediastinum. In true emphysema and pneumothorax the respiratory movement is restricted in its upper half. In compensatory emphysema the respiratory movement is increased in both upper and lower half. This is important, because a compensatory emphysema on one side means an impairment of the lung on the opposite side. It may, however, in rare cases, be an old trouble from which the patient has recovered. A very marked restriction in the motion of the diaphragm or its immobilization is a grave sign. Pleurisy, especially diaphragmatic pleurisy, forms an apparent exception. However, if the patient be encouraged, the diaphragm can be moved, although pain is the result. It is a significant fact that nature so quickly immobilizes a diseased lung.

When in addition to the shadow-free lung, we find a natural movement of the diaphragm, we may feel assured that even though tubercle bacilli are present in the sputum, the prognosis is good.

THE ATTITUDE OF THE GENERAL PRACTITIONER TOWARD THE TUBERCULOSIS PROBLEM *

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Apropos of the modern anti-tuberculosis campaign, a physician recently made the remark that it is time to stop educating the public and turn our attention to educating the physician. A great deal of very useful information concerning the nature of tuberculosis has been given to the public in the last ten years. Most intelligent people know that tuberculosis is a specific disease caused by the tubercle bacillus; that the disease is spread by this germ; that an early diagnosis is desirable; and that some patients recover from this disease. The work of the local, state, and national societies has interested many people in the

fight against this disease, and much money from both private and public sources is being given to prevent its spread. It is certain that if in this campaign of education there is urged on the public the necessity of early diagnosis and frequent consultation of the physician, a great responsibility is put upon the medical profession. It is possible that we have reached the point where the educated public expects more from the profession than it is receiving. It seems to me that it is true that the effort to stop the spread of tuberculosis is being most seriously hampered by the lack of an aggressive co-operation on the part of a large number of physicians. When physicians fail to render the service which a public, educated by the modern anti-tuberculosis campaign, expects and demands, it is time for the profession to take notice and consider what should be our attitude toward this greatest of all hygienic problems. It is the purpose of this paper to discuss briefly what this attitude should be and to point out some of the respects in which we are failing in what may be expected of us.

TUBERCULOSIS IS CURABLE.

If there is one thing which should be emphasized in connection with the educational feature of this fight, it is that incipient tuberculosis is curable. The doctor is the one above all others to teach this lesson. Patients must understand that a diagnosis of incipient tuberculosis is not a death warrant. Many people will not believe that tuberculosis is curable, because in their observation doctors have not diagnosed the disease until the chance for recovery has gone by.

Some physicians seem positively unwilling to make a diagnosis of early tuberculosis. The reason for this is that they do not really comprehend the full significance of the fact that a large percentage of patients afflicted with tuberculosis recover from the disease. Under favorable conditions an immunity is established and the patient recovers. Considerably over 90 per cent. of all subjects coming to autopsy show either healed or active tuberculosis. Of this number no one can say in how many the disease has progressed far enough to produce symptoms, but it is reasonable to suppose that the majority of those have had at some time clinical manifestations of the disease. Tuberculosis kills probably not more than 10 per cent. of those who show lesions at autopsy. This teaches us then, that the tendency is toward cure, that with or without treatment a large number of those afflicted will recover. Notwithstanding this, many physicians seem to be timid about making a diagnosis because the patient may get well. They somehow either consciously or unconsciously feel that a recovered case is a proof of error in

* Read before Section on General Medicine, 48th Annual Meeting Michigan State Medical Society at Flint, Sept. 4-5, 1913.

diagnosis. If we appreciate the curability of this disease, such a consideration will not stand in the way of a diagnosis based on accurate clinical and laboratory findings. We must expect our patients will get well and learn to associate a good prognosis with an early diagnosis.

EARLY DIAGNOSIS.

An aggressive policy on the part of the physician must include an effort to reach an early diagnosis in all cases coming for examination. Many physicians are unwilling to diagnose tuberculosis from physical signs. A very large percentage of them still consider the demonstration of *tubercle bacilli* in the sputum as the *sine qua non* of diagnosis. The physician who bears in mind the wide spread prevalence of this disease, as shown by autopsy records, must hesitate to make an unqualified negative diagnosis in any patient who comes to him with clinical symptoms suggesting tuberculosis. It is not my purpose to enter into a discussion of the methods of diagnosis of incipient cases; but I should like to make a plea for the using of every means that is available for making an accurate diagnosis in every suspicious case. A careful family history, clinical history of the patient, repeated physical examinations and observations of pulse and temperature, repeated sputum examinations, tuberculin tests, animal inoculations, and X-ray examinations are means which should be made use of in every case in which there is danger of overlooking a tuberculous focus. Contrast this with the attention that many incipient cases receive. They go to the physician, who may make one examination, may make or have made one sputum examination and then tells the patient that the trouble is bronchitis or catarrh or something else. The patient receives this news gladly and goes on about his work, losing the opportunity of arresting the disease in its incipency.

Tuberculosis will never be effectively prevented if physicians continue to postpone positive diagnosis until the disease has arrived at an advanced stage and *tubercle bacilli* are found in all specimens of sputum. Where *tubercle bacilli* appear in the sputum, the case is an open one and the disease has become a danger not only to the patient but also to those with whom the patient is associated. There is, of course, a possibility of doing an injustice to a patient by making a wrong diagnosis. The presence of tuberculosis means that he must make certain changes in his mode of life. It often involves a radical change. We should not make such a diagnosis without good reasons. But it would be better, if we must err, to cause ten patients the inconvenience of getting into habits of correct living rather than

to let one patient unnecessarily succumb to the disease and in so doing infect many of his family and associates.

SOURCES OF INFECTION.

Another way in which the physician may be aggressive is in searching for sources of infection. If a patient is suspected of tuberculosis, in many cases it is possible to demonstrate the source of infection. If the physician does not take pains to find this out, it will probably not be done. Health departments are often unable to carry out such investigations. In many cases one may find that an infected house is the source of trouble. Most physicians who have given the matter attention have observed cases of this sort. Sometimes an office or a factory may be the source of several cases. If every physician who diagnosed a case of tuberculosis, instead of being content with diagnosing the particular case, would investigate such possibilities, and, having found out their existence, would acquaint the proper authorities, a great deal would be accomplished.

Family infections have long been observed, but physicians often show a strange lack of appreciation of their significance. One case of tuberculosis in a household should make the physician suspicious of every other member. He should recommend and insist on examination of the entire household. The usual policy of waiting until other cases have developed into an advanced stage before examination and diagnosis is frequently due entirely to lack of a proper attitude on the part of the physician toward the problem of the extermination of tuberculosis.

The physician is often brought to the consideration of cases which he suspects are chronic carriers of tuberculosis. We are all familiar with the fact that many persons go about for years with open tuberculosis without very much impairment of the general health. These persons take their cough and expectoration as a matter of course. They attach no significance to it whatever, and yet their expectoration is a constant menace to those with whom they are associated. How shall these cases be brought under observation and their true condition made evident? Surely the family physician has a responsibility in this matter. If he does not make an honest effort to bring these cases to light they will continue to act as carriers. Frequently these persons never apply for examination, but the physician is summoned to treat some other member of the family. Often by the exercise of tact and judgment these cases may be subjected to examination. The question of ethics and shrinking from urging one's professional services on such a subject really ought not to interfere with an effort to find out these carriers of infection. At

least the physician who does not seek to use fair and wise means of demonstrating these cases, does not discharge his entire duty in the fight against tuberculosis.

CONCLUSIONS.

The points attempted in this discussion may be summarized as follows:

1. The anti-tuberculosis fight is being seriously hampered by a lack of co-operation on the part of many physicians.
2. Physicians do not appreciate the curability of incipient tuberculosis.
3. Early diagnosis is often not made because of lack of thoroughness.
4. Sources of infection are often overlooked on account of lack of interest on the part of the doctor.
5. Family infections are not investigated as they should be.
6. Chronic carriers are allowed to go on infecting others.

CANCER AND A PLEA FOR EARLIER DIAGNOSIS *

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The appalling increase of cancer, and the unfortunate and deplorable states in which women and men come to us for diagnosis, in whom we find far advanced, inoperable growths, beyond any modern method of treatment, is a sufficient plea for the title of this paper this evening. Therefore, I wish to bring before you some of the salient facts for earlier diagnosis on the part of the profession as well as the laity because the amelioration or eradication of this scourge never can be accomplished as far as the individual or the community is concerned until we teach the people at large the danger signs, and the profession exercise greater care in observing the scientific early symptoms.

The word cancer, coming from the Latin, meaning "Crab," amongst the laity, means a malignant growth. Amongst the profession it means a malignant growth that may originate from epi- or hypoblastic tissue making the carcinomata; or from mesoblastic tissue giving the sarcomata and endotheliomata, etc.

ETIOLOGY.

The true etiological factor is as yet not known. No doubt this next decade of investigation will lead to the discovery of the causative factor. Coley, of New York, from his massive experience with the sarcomata believes in the causes being a living organism.

In two recent cases of mine, there were distinct histories of local injuries at the site of cancers—one a large round cell sarcoma of the neck, and the other a carcinoma of liver.

We do know that we get cancers where there appears a pre-disposing cause, as injury or over-use, etc., in a region of the body where we had embryonal cells, or cell inclusions, or in apparent normal tissue. In microscopic sections the cancer cells have reverted to the embryonic types with larger cell bodies and nuclei, and mitoses, suggesting from the way they invade normal organic territory along the blood and lymph channels, and by continuity, that they have taken on a wild or insane growth, severing all connections with a central trophic nerve control. This we attribute to a local condition, to auto-intoxication, or to some form of bacteria or parasite.

Dr. Carr, the president of the Washington Surgical Society, claims: that our modern method of living, first: lack of fresh air; second: fear and worry; and third: too little muscular exercise and too much brain cell fatigue, makes civilized people more susceptible to cancer; but the savage, amongst whom cancer is not known to any extent, do not suffer from any of these defects.

DISTRIBUTION.

Cancer is known the civilized world over, and in a proportion increasing to such an extent that when it occurs breathes horror and mutilation and death in a degree to be feared more than pulmonary tuberculosis.

Its mortality records have been increasing on account of first, clearer diagnosis, and second, apparent increasing frequency, and in some localities passing that of tuberculosis. (Peterson). It appears, as said before, that amongst uncivilized people malignant growths are not known, and increases with the advance of civilization. (Carr).

EDUCATIONAL ACTIVITIES.

A world wide campaign against the scourge would occur today, as the anti-tuberculosis campaign, but the absence of the knowledge of its absolute cause does not give us the fundamental basis. But, when the etiology has been worked out, there will arise such a campaign, a rival of that one of today.

In Germany, the state has taken up the question, and by pamphlets and news articles is spreading knowledge about cancer in order that the public will seek early advice from physicians, because they realize that in the pre-cancerous or early cancerous stage of this multiple disease it is amenable to *thorough* surgical care with the highest percentage of cures. In nearly all the other countries of Europe commissions and associations have been or-

* Read before the Houghton County Medical Society Nov. 3, 1913.

ganized to carry on work along these same lines.

When we think back but one year of our carcinomata of the breast, uterus, stomach, and liver, and sarcomata of bones and mesoblastic tissue, etc., we cannot emphasize too strongly the need of such work and we can heartily endorse the sentiment. It is imperative on us as citizens and medical men to strive to our utmost to reduce the mortality.

In the United States the cancer question has resulted in a national society for the relief and prevention of cancer, and many of the national, (American Medical Association and American Gynecological Association) and smaller county and state societies have committees appointed to look into the importance of methods of early diagnosis of cancer. November 13th, 1913, in Chicago, was another banner day for this question.

At the last meeting of the American Gynecological Society in New York, this subject was much discussed by our most earnest and best surgeons. They were nearly all in accord upon enlightening women through the latter's clubs and magazines upon the danger of permitting tumors of the breast to remain until pain arises, and fibroids and other tumors of the pelvis to lie as benign growths; to permit examination of pelvic organs when it was thought necessary to disprove malignancy; and to not neglect investigation at any irregularity at all during the menopause, metrorrhagia, menorrhagia, etc.

William Mayo, before the American Medical Association in 1913, emphasized, what we all know and believe, that even carcinoma of stomach is curable if recognized early enough. Therefore, make the stomach tube as important and frequent an instrument of diagnosis as the stethoscope, for then we can recognize, by chemical analysis of stomach contents, the absence of hydrochloric acid with or without presence of blood, etc. When "tissue-bits" are found in stomach contents, it is very likely too late for any treatment. Occult blood in stool is a very important corroborative evidence.

In April, of this year, I saw a man of fifty-four years who lost twenty-five pounds in weight; had loss in appetite; with one attack of pain in stomach region, relieved by lavage. There was no tenderness, and absolutely no palpable sign of mass in epigastrium, or any enlarged glands. His stomach contents contained no free hydrochloric acid on repeated examinations; the motility was good with no retention, but there was a trace of occult blood in his stool. (Weber). On account of age, loss in weight, and stomach and intestinal findings, I made a diagnosis of probable carcinoma

of stomach and advised exploration. Dr. Billings, of Chicago, corroborated my findings. On exploration the growth was inoperable, but gastro-enterostomy was done giving excellent results. This is one more plea for teaching the laity to understand the need of earlier advice by physicians.

STATISTICS.

In a pamphlet issued by the "Society for Prevention and Relief of Cancer" from London June, 1913, we find many points of interest. They say cancer is increasing, and that one in every seven women and one in every eleven men die of this disease. In England and Wales, from 1851 to 1860 the average death from cancer equalled 6,020; from 1881 to 1890 the average death equalled 16,192; from 1900 to 1910 the average death equalled 30,419; and in 1910 was 5.9 per cent of total death. In the United Kingdom, from 1880 to 1910, the cancer death rate just doubled itself. Fifty years ago, to one hundred deaths from tuberculosis there were sixteen cancer deaths; but now, to one hundred deaths from tuberculosis there are ninety-six cancer deaths.

In this same report, Sir Jonathin Hutchinson claims that on account of improved hygienic conditions people are permitted to live through infectious disease periods, allowing more to die after thirty-five years of age which is the cancer period.

In Michigan, in 1909, cancer of stomach and liver predominated, being three to four times that of female genitals, with the latter next, but the sum of the cancers of the stomach, liver and intestines is one and one-fifth times that of all other cancers combined. The death rate per 100,000 in 1911 was 72.3 and increased to 74.4 in 1912.

In 1899, W. H. Welch in an analysis of 30,000 cases of cancer, 21.4 per cent. were of stomach, next in frequency to uterus. Dr. C. Martin in Osler's Practice, in 1,000,000 hospital admissions showed 4,700 gastric cancers or 47 per cent. and in combined autopsy statistics of over 50,000 cases there were 2,000 gastric cancers or 4 per cent. In Hamburg, from 1872 to 1895, their collection showed 50.2 per cent. of all cancers as gastric and combined with that of intestines from 75 to 85 per cent. of all cancers. Another series of 70,000 cancers show 33 per cent. gastric.

MICHIGAN STATISTICS.

I have collected and placed on charts tabulated rates of death covering United States registration area, Michigan, and our own county, based upon the mortality statistics of the Bureau at Washington. In the United States as the registration area increased 66 per cent. in population, pulmonary tuberculosis and

pneumonia increased but 25 per cent., cancer doubled in ten years from 1900 to 1909 inclusive.

In Michigan during the same period we had 1 per cent. increase in population and per 100,000 population a 10 per cent. decrease in pulmonary tuberculosis, 33 per cent. decrease

nary tuberculosis increased 54.2 per cent. and pneumonia decreased 52.2 per cent. In fourteen counties of the state cancer equals or exceeds pulmonary tuberculosis. In Ann Arbor, probably on account of the University Hospital, in 1900 cancer and pulmonary tuberculosis were equal, 151.6 per 100,000; but in 1909

CHART NO. I.

	U. S. Regs. Area.			Michigan			Houghton Co.		
	1900	1900 to '09	1909	1900	'00 to '09	1909	1900	'00 to '09	1909
Total Popul'n .	30,765,618	37,692,567	50,870,578	2,420,982	2,520,016	2,772,421	66,063	74,094	85,742
Tot. Deaths ..	539,939	598,734	732,538	33,973	34,023	36,260	965	1,008	965
Tot. 35 yrs. plus		313,227				18,016	50.4%		56.7%
Tot. pr 100,000	1,760	1,580	1,440	1,400	1,340	1,310	1,460.7		1,125.5
Total deaths:									
Cancer	19,381		37,562	1,472		1,952	31		34
Per 100,000 .	62.9		73.8	61.2		70.4	46.9		40
Ave. age—59 years									
Pulm. Tbc. ..	55,504		70,040	2,184		2,237	59		91
Per 100,000 .	180.8		137.7	90.2		80.7	89.4		107
Ave age—36.1 years.									
Pneumonia .	55,513		70,030	2,247		1,733	69		33
Per 100,000 .	1,808		137.7	92.8		62.5	104.6		30.8
Ave. age—37.4 years.									

In Michigan, per 100,000—Cancer, 1911, 72.3; 1912, 74.3.

	U. S. Registration Area.		Michigan.	
	1900	1909	1900	1909
Deaths from Cancer per 100,000:				
1. Stomach and Liver	22.5	29.5	24.9	29.5
2. Intestines	5.7	9.3	6.4	7.9
3. Female Genitals	8.8	11.2	9.8	10.1
4. Mouth	1.6	2.8	1.9	3.0
5. Skin	2.0	2.9	2.6	3.0
6. Breast	4.7	7.0	5.7	6.6
7. Other Cancers	17.8	11.3	12.9	10.9

U. S. Bureau of Census.

CHART NO. II.

	1900	'01	'02	'03	'04	'05	'06	'07	'08	'09
Cancer:										
U. S. Regr. Area	63	64.3	65.5	68.3	70.2	71.4	68.1	70.9	70.8	73.8
Michigan	61.2	60	59.6	67.5	67.4	63.6	66.5	65	70.6	70.4
Houghton County	48.4	44.6	64.4	46.1	62.3	56.9	32.5	32.6	48.5	39.7
Pulmonary Tuberculosis:										
U. S. Regr. Area	180.5	174.5	162.6	164.9	176.2	166.7	155.6	154.3	144	137.7
Michigan	90.2	88.4	84.1	85.3	91.3	87.6	88.6	86.5	82.3	80.7
Houghton County	90.8	92.3	92.2	102.2	109	109.7	139.3	85.2	91.8	106.1
Pneumonia:										
U. S. Regr. Area	180.5	161.3	155.7	155.1	171.5	148.5	145.5	156.5	30.9	137.7
Michigan	92.8	99.1	85.9	80.1	80	71.8	72.8	81.8	64	62.5
Houghton County	104.5	81.8	93.7	89.2	94.9	81.2	92.4	60.2	59.2	38.5

Death Rate per 100,000, U. S. Bureau of Census.

in pneumonia and about 13 per cent increase in cancer.

HOUGHTON COUNTY.

Houghton County clerk's records show that during 1900 to 1909 inclusive, 28.2 per cent. increase in population with no increase in death rate; but cancer increased 9.7 per cent., pulmo-

cancer mortality equaled 284 to 101.4 for pulmonary tuberculosis.

An interesting fact appears in the U. S. registration area. Physicians and surgeons in 1909 had a mortality rate per 100,000 from pulmonary tuberculosis, 6.6, cancer 6.7, pneumonia 7.4.

THE PHYSICIAN'S DUTY.

At this point it is well to ask a question: What is our duty with this knowledge of cancer? First, educate the public, and second improve the methods of the practitioner.

I. Under educate the public we teach that:

1st—The cancer age or the age of greatest susceptibility is at thirty-five years and onward, 55 to 60 years being the average. Cancers do appear at an earlier age also. Any of the facts enumerated in number four of this division appearing at this period should be thoroughly investigated by a physician to ascertain if there is a chance of malignancy. Menopause always holds for the woman a period of danger, during which she should report any irregularity.

2nd—The stomach, female genitals, breast, liver, intestines, are the locations of greatest danger in the order named.

3rd—History of cancer in family, is important, and Osler says occurs in about 10 per cent. of cases.

4th—Teach the masses the danger of indurations, masses, and fissures; that fibroids should not be considered benign, on account of the possibility of malignant changes arising; the importance and significance of hemorrhages from stomach, or bowels or bladder; metrorrhagia and menorrhagia at menopause; of the significance of loss in weight at the cancer period; the need of thorough investigation of "dyspepsia" after thirty-five years.

5th—Teach the masses that the earlier you get at a cancer the larger percentage they have in their favor. Now with the most careful surgery, serum, and vaccine, and combined rays-treatment our cures are but 20 per cent. at the outside. During a short period I had under my care five cancers with the following results: (a) Giant cell sarcoma of last phalange with amputation of third finger; (b) carcinoma of the stomach with a gastro-enterostomy—only relief; (c) Carcinoma of the liver—died; (d) Large round cell aly. sarcoma of the neck—died; and (e) Carcinoma of the uterus, dying.

6th—Give a publicity committee of the United States, State, and County societies authority and power to publish facts concerning cancer and the early signs of cancer of the stomach, breasts, uterus, and intestines, etc., sending these to physicians and nurses. Also to bring these facts as above stated properly before woman's clubs, and woman's magazines, emphasizing that they must not wait for the growth of benign tumors or pain or tenderness to signify attention. We are fully aware of the fact that tenderness and growth of melanotic moles mean probable liver metastases; that pain in a breast tumor means metastases, and recurrences. The same can be said of indolent

ulcers of the skin, and tumors of the pelvis. The degree of malignancy may be measured by a microscopic pathological specimen to some extent, but unfortunately the time of same is beyond us.

7th—Beware of the danger of so-called cancer cures—I. E. from St. Louis, and Odin's of Paris.

8th—Do not massage tumors.

9th—Decrease worry and encourage more fresh air living.

II. To improve the physicians' results we must observe the facts as stated above and in addition:

1st—Accurately registering in scientific english cancer cases and deaths. I found while consulting the mortality records of the County Clerk that many languages are used excepting scientific english, and I must also say that unscientific and misleading causes of death are reported.

2nd—Send from a central source to every physician in the state articles emphasizing the points brought up in previous paragraphs. (I.—first subdivision of the first division).

3rd—Establish in our universities special courses for under graduates, nurses, and post graduates, and possibly other students, to give them the methods and technic, and need of early diagnosis of cancer.

4th—We should have a state laboratory or access to free examination for pathological specimens.

5th—Remove benign or malignant tumors for excision or pathological examination, thoroughly, in such a way as not to contaminate edges of wound by cancer tissue.

6th—It is obligatory to our scientific sense to disprove in negative cases as well as to have proof in positive cases, the absence of malignancy.

8th—*Do not delay.*

FRACTURES FROM THE MEDICO-LEGAL STANDPOINT*

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About 40 per cent. of the cases reported to The Medico-Legal Committee of The Michigan State Medical Society are fracture cases, and I feel sure that the ratio is not diminished in other states. So far as my information goes nearly every malpractice case within recent years in this state in which settlement has been made or final judgment paid has been a fracture case. This must be accepted as proving

* Read before the Lapeer County Medical Society, Oct. 14, 1913, and before the Wayne County Medical Society Nov. 17, 1913.

the dissatisfaction of the laity with the functional or anatomical results of the present treatment of fractures. It is very evident that more is expected of us than we are giving and the inquiry is pertinent, wherein are we at fault, if we are at fault? Most fractures are reduced and treated by the general practitioner often without consultation with any colleague more experienced than himself. The anatomical training necessary to admission to practice is adjudged sufficient to fit every physician for the treatment of injuries to the body structure and doubtless is. Nevertheless, some men possess special mechanical skill and experience and are valued consultants especially for convincing the patient that the treatment is the best possible under the circumstances.

Four things are necessary for the successful treatment of fractures: 1. An exact diagnosis. 2. The best possible replacement of the bone. 3. Maintenance of the fractured bones in correct anatomical position. 4. Osteogenetic action sufficient to produce firm union. Exact diagnosis is impossible in some fractures without a radiograph, therefore a properly taken and interpreted radiograph before and after reduction is of great assistance in outlining the best plan to be followed by treatment. Note that I say a properly taken and interpreted radiograph. It is perhaps unfortunate but nevertheless true, that the equipment and training essential to meet this requirement belong to but a few men in the large cities; therefore the field of usefulness of the X-ray is limited to those ambulant cases which can travel to the good machine and the good operator. The position of radiographers who state openly and even testify in court that a radiograph is a "*Sine Qua Non*" in treating fractures is both unwise and untrue, for it assumes that the X-ray is the *only method* of diagnosis and that its use assures a good functional and anatomical result. Admitting the value of the radiograph, properly taken and interpreted, it has a limited function in treatment because it so often but discloses conditions not amenable to treatment.

In many or most fractures of the long bones we cannot put and maintain the fragments in perfect anatomical juxtaposition, on account of the pull of the muscles, without converting a simple into a compound fracture and wiring or plating the bones. This procedure, though ideal, can never become a legal requirement because it should never be undertaken except by the surgeon who has acquired a perfect *instrumental* technic and in a good hospital, a manifest impossibility in the majority of fractures for the reason that except in cities or large industrial centers neither the skilled operator nor the good hospital are to be found. The law holds each physician responsible for the

"Average degree of knowledge and skill of the medical community in which he lives." Hence the country practitioner will satisfy the legal requirements without bone plating or radiographs, unless the prevailing custom of his community is to use these adjuncts.

It may be that the Courts will ultimately decide the radiograph to be so valuable an adjunct that a doctor is negligent who has not used it and the wise man will place the burden for failure upon the refusal of the patient to carry out his suggestion rather than upon his neglect to advise a radiograph. In a recent case in New York a large verdict was given in the lower court, principally because a radiograph was not taken in a fractured femur. This case is being appealed so that this ruling is not final. A somewhat similar case was lost in our state because a radiographer testified that he considered it negligence not to have a radiograph in every fracture, although the patient in question lived sixteen miles in the country. If such views are held by radiographers they should be reserved for medical meetings and then given purely as a matter of opinion. Such opinions are biased by the fact that the sponsor therefor makes his living by taking radiographs and can have little conception of the difficulties of treating fractures after he has done his little part. They are unfair because they assume an admitted diagnostic aid to be essential to treatment. They are unwise because such opinions, frequently and publicly repeated, may persuade the Courts that what is a half truth under some circumstances is an invariable fact, and an incalculable injury be done to the profession, already too open to attack.

Fracture cases are hard to defend because apparent deformity with real or assumed disability presents ocular evidence, from which the assumption of negligence or incompetence is easily drawn. Any fracture case which reaches a jury is rather certain to result in a verdict against the doctor. In analyzing the reason for this failure of justice it seems due to ignorance as to what really takes place in the repair of a broken bone and the role of the physician in connection therewith. We can diagnose the fact of a fracture, we can and should know the location and type of fracture, whether simple or comminuted, straight or spiral, transverse or oblique and can generally ascertain it by the usual methods of examination with or without the aid of an anaesthetic or a radiograph. A radiograph is of great assistance in corroborating our clinical findings and in demonstrating to the patient the condition present and our understanding thereof. An anaesthetic is frequently valuable in the reduction of a fracture, rendering the necessary manipulation painless and enabling the surgeon

to restore the former anatomical relations as nearly as possible. It is then necessary to maintain the fragments in this position during the process of repair. Splints must be long enough to immobilize both ends of the broken bone and neither too loose nor too tight, and must be fitted to the contour of the part and refitted to the comfort of the patient.

If we have done this, skillfully and intelligently, we have done all that the law requires and all that it is possible to do, and are not responsible or blamable for untoward results. We cannot always be sure that muscle, fascia or blood-clot do not intervene between the ends of the bone to prevent union or that sufficient osteogenetic power is there to give firm union. We can in no way (except by immobilization) regulate the amount of callus thrown out, an excess of which may cause deformity or impair function. In fractures of the clavicle, scapula, sternum and pelvis absolute immobilization is impossible and some overlapping or deformity is the unavoidable rule. In fractures of the long bones it is frequently impossible to put and keep the fragments in even approximate position, the pull of the attached muscles preventing. In such cases we will have a bad anatomical result but not necessarily a bad functional result. In fractures involving joints we must expect some loss of function. This in the elbow may seriously impair flexion and extension because excess callus or a displaced fragment are in the way. Take a T fracture through the condyles and no method will keep the fragments in position but wiring or nailing. In a fracture of the surgical or anatomical neck of the humerus or an intra-capsular fracture of the femur, we have no control over the upper fragment and must expect impaired function unless we operate. But to operate unless under proper conditions therefore substitutes the hazard of loss of limb or even life for that of loss of function.

The statement is often made by advocates of the Lane plate or other operative treatment that the results of conservative treatment are so bad as to justify operation on every case where a perfect anatomical reduction cannot be had and maintained. Is this true? In my opinion these advocates do not distinguish between cosmetic deformity and loss of function. Excluding joint fractures and those high in the shaft of the femur our results are uniformly good, functionally, and it is yet to be proven that the average results are better with operative treatment. It is admitted that the results *look* better but many a doctor who has seen the pulling and handling necessary to reduce and plate a femur would take his chance with Bucks' extension. His resultant shortening might necessitate a high shoe, but he has his leg and his life with no vanadium steel plate

to cause future trouble. The bone work of Murphy and others offers hope for the future that the impaired function of joint fractures may be overcome by resection or nailing of the fragments with retention of workable joints. But such work is not for the general practitioner and should be reserved until it is known that nature plus the surgeon have failed, in the individual case, to obtain a useful joint. Conservatism is not negligence and the freedom from hazard justifies the trial of simpler means first. Because a hysterectomy cures a fibroid, whether the patient lives or dies does not justify the operative removal of simple non symptom producing fibroids. Neither does the fact that *some* operations for fractures are very successful, in *some* hands, justify submitting all fractures where perfect anatomical position cannot be maintained to operation.

What should be the course of the man called upon to treat a fracture? He should be certain that a fracture exists and know what it involves. In this exact diagnosis a properly taken and interpreted radiograph is of great assistance. If a good coil and operator are not available at least place upon the patient the blame for not having this aid. Call to your assistance the best man in your vicinity that you may have his corroboration that the position and treatment is the best possible in the individual case. See the case often enough to know that the retentive apparatus holds the fracture with comfort to the patient and without obstruction to the circulation. Take the patient into your confidence enough that he may understand the problem you have to deal with and demonstrate by the radiograph, if you have one. Tell him that he will have impaired function and some deformity, if you think he will, even if you exaggerate the condition beyond what you expect to get. It is better to give him a better result than he expects, better for both physician and patient. If he is satisfied with the result it makes less difference if you are not. If he was told at the start to expect certain things and you have witnesses to that effect he will not blame you for what he understands to be unavoidable. But if he sees a bend or a lump or has an impairment of motion when he expected a perfect result he has ocular evidence to convince most juries that you did not properly set the fracture and may attempt to do so because he does not know that this special fracture could not be kept in place. You are legally to blame if you do not make a diagnosis unless you can show that you used all means for so doing which other men in your community use. You are negligent if you do not use proper splints or retention apparatus or bandage too tight or too loose, but if you can show that you used ordinary care and skill you should not be held

responsible for results. A friendly consultant will aid you greatly in proving this. Within the past few years there have been several verdicts against physicians in this state in fracture cases. In one settlement was finally made, after several trials, where the allegation was, that a plaster cast was applied tight enough to obstruct and the foot was lost thereby. In another the Supreme Court decided that the doctor had not used ordinary knowledge in striving to diagnose an impacted fracture of the femur, for he had made no measurements or applied other expert means of detecting the condition with which the law assumed him to be familiar. This case was doubtless a Charcot joint, where the absence of pain led the doctor to rule out fracture without making a careful examination. In another, a large adverse verdict was given in an elbow case where all medical evidence was in the doctor's favor but the apparently perjured testimony of the family carried the case to the jury. In this case pressure on the nerve by a displaced fragment led to an operation by another surgeon and the family claimed to have repeatedly called attention to this fragment as out of place. In another, a large verdict was given against a country doctor through the testimony of a radiographer that failure to have a radiograph constituted negligence, although the patient lived sixteen miles from a coil. In two cases suit has been brought where a doctor made a first dressing, never seeing the case afterwards, the first doctor being supposed to guarantee that reduction, made as a temporary measure, would give a perfect result in spite of negligent or incompetent after care.

An occasional physician is short sighted enough to criticise the work of a colleague with no knowledge of the difficulties encountered in the special case. This but touches the spark to the fuse and a malpractice suit follows. In fact, some professional support underlies nearly every such suit. If the profession would stand together, man to man, to fight this menace, few fracture cases would reach trial, for professional testimony is necessary to prove incompetence or negligence. Unless we can educate both the profession and the laity to regard some deformity and some disability in some fractures as inevitable we will have to come to the point where we refuse attendance upon such cases unless absolved from responsibility or blame for untoward results. Education of the patient seems the most feasible. If he understands the condition and the difficulties, knows that you understand them, knows that he must expect some deformity or loss of function and that nature rather than you is responsible for what cannot be helped, he will be proud that so competent a physician has given him the good result which he has. For the occasional blackmailing patient, who will suppress his

gratitude for the hope of filthy lucre, there is no redress except to stand together and never aid, by private criticism or public testimony, such unjust assaults upon the profession. Realizing the risk in treating fractures we must be ever watchful that we have not "Left undone those things we ought to have done nor done those things we ought not to have done" and be ready to prove it, both ways. With a careful diagnosis, a consultant for corroboration, skillful and non-negligent treatment, a satisfied patient by reason of understanding his own case, and a profession above making capital at the expense of each other, suit for fractures can be made very nearly a relic of the dark ages of medicine.

EDITORIAL NOTES OF UTMOST IMPORTANCE.

For your own benefit and protection, *please remember these facts:*

The large majority of suits for damages for alleged malpractice which we are called upon to defend, are based upon an alleged improper treatment of a fracture.

In every case of fracture that comes to you for professional treatment, see that an *X-Ray plate is made and that you keep it in your possession; do not give it to the patient.*

Whenever possible, have some other physician see the patient with you, make a careful examination of the fracture, and *be able to testify that it was properly set and bandaged.*

Use the fluoroscope if you like, but in addition be sure to have a plate made; it will remain a permanent record of the condition at the time it was taken.

In two instances where suits were brought, the member had thoughtlessly given the X-ray plates to the patient and of course the patient would not produce them; they were "lost."

In 1896, Dr. Jones gave a demonstration of the then very new X or Roentgen rays before the San Francisco County Medical Society. In the course of his remarks he expressed the opinion that the time would come when any physician who treated a fracture case without making an X-ray examination of it, would render himself liable to a suit for damages. Many of those present ridiculed this opinion and one went so far as to deplore the discovery of the X-rays, saying that they would make surgeons less careful and less skilful. Carelessness in this regard—not taking and keeping an X-ray plate—has cost the Society \$4,000 in the defense of suits which came about more or less as predicted.

To put it graphically, this carelessness has cost each individual member almost \$2, for the money for defense comes out of our pockets; the more the work costs the Society, the higher is the required assessment.

Have an X-ray plate made in every case of fracture.

Keep the plate—don't give it to the patient.

Have a consultant if possible.

These things are for your own protection and a little care and thought may keep you from a great deal of trouble and loss of time and annoyance in the future.

Also, see that your dues are paid promptly before March 1st.

—California State Medical Journal.

TRANSACTIONS

OF THE

Clinical Society of the University of Michigan

Stated Meeting, December 3, 1913

The President, R. BISHOP CANFIELD, M.D., in the Chair

Reported by REUBEN PETERSON, M.D., Secretary

Reading of Papers

FAMILY SUSCEPTIBILITY TO CANCER

ALDRED SCOTT WARTHIN, Ph.D., M.D.

(Professor of Pathology and Director of the Pathological Laboratories in the University of Michigan, Ann Arbor.)

It has long been recognized that a family susceptibility to certain forms of benign neoplasms exists. Many of the peculiar "family marks" or "birthmarks" distinguishing the members of certain family lines are neoplasms usually of a mature connective-tissue variety, chiefly hemangiomas, lymphangiomas or fibromas (moles, warts, nevi, "strawberry mark," "raspberry mark," etc.). Lipomas, chondromas, osteomas, neurofibromas, gliomas, leiomyofibromas, papillomas, adenomas and cyst-adenomas have been observed to "run" in certain families, and most authorities agree as to the existence of a family susceptibility in the case of these neoplasms. Certain varieties of carcinoma and sarcoma are also regarded by various writers as showing a less marked family tendency.

As to a general susceptibility to cancer appearing as a definite family characteristic, authorities at the present time are divided. Its existence is denied by some, and as strongly affirmed by others, but as a matter of fact there are very few good statistical studies of the family occurrence of carcinoma. Cancer surveys have yielded little of value because of the great difficulty in obtaining immediate knowledge of members of a given family for more than one or two generations. It is a well known fact that few hospital patients can give any definite information as to the cause of death of their grandparents, and the same thing is true of the population at large. It is only in rare instances that a complete family history extending over several generations can be obtained. Further, when such rare complete family histories covering a number of generations can be obtained, it must be borne in mind that the diag-

nosis of cancer a generation or two ago was almost wholly a clinical one, unsupported by microscopic examination; and that the common clinical diagnosis of "tumor" covers a very large and heterogeneous class of conditions, the majority bearing no relationship to carcinoma. It is obvious that such a diagnosis has no statistical value; but, as a matter of fact, many of our so-called "cancer statistics" are based upon just such loose clinical statements. This is, however, no argument for rejecting all of the diagnoses of cancer that have been made without the corroboration of the microscopic examination. Particularly in the case of lip, stomach, breast and uterine cancers may clinical diagnoses or family traditions be relied upon with a high degree of certainty. The outward appearances of breast and lip cancers, the striking symptoms of gastric and uterine cancers, in connection with a malignant course and fatal termination offer very fairly reliable criteria for both a clinical diagnosis and family tradition of cancer of these organs; and the percentage of error is probably not very great in so far as these conditions are concerned. In the case of other diagnoses of "abdominal cancer" or "tumor," "cancer of the liver," etc., the precise nature of the affection is very doubtful.

Throughout the literature, particularly that relating to cancer of the breast, there are recorded instances of the multiple family occurrences of cancer. Few of these consider more than the members of the same or of two generations, and usually the affected members alone are taken into account. Such statistics give little information beyond the fact of the multiple occurrence of cancer in certain family groups or generations. Of recorded observations of the multiple occurrence of cancer in one family for several generations the one of Broca (*Traité des Tumeurs*, 1866, p. 151) is the most important. In brief, this family showed cancer in sixteen out of thirty-seven

members, as follows: Madame Z, died at the age of sixty of cancer of the breast. She left four daughters (A, B, C, D) who died of cancer of the liver (2) and cancer of the breast (2) at the ages of 62, 43, 51 and 54 respectively. Madame A had three unmarried daughters, alive and well at ages of 68, 72 and 78 years. Madame B had five daughters and two sons. First son died, without issue, at 54, of cancer of the stomach. First daughter died at 35 of cancer of breast; second at 35-45 of cancer of breast; third, at same age, of cancer of breast; fourth, at same age, of cancer of liver; while the fifth died at 60, non-cancerous. All of the children of Madame B were without issue. Madame C had five daughters and two sons. The first son died in the army without issue; the second son was alive and well at the age of 72. He had one son dying at 18, and one daughter alive and well at 24. The first daughter of Madame C died at 37 of cancer of the breast, leaving two sons and three daughters. The first of these was alive and well at 58, having three healthy sons; a second son died young without issue; first daughter died in child-bed at 28; second daughter died at 49 of cancer of the breast, bearing two healthy daughters; the third daughter died of consumption at 41. Madame C's second daughter died at 40 of cancer of the breast, leaving one healthy son; her third daughter died unmarried, at 47, of cancer of the uterus; the fourth daughter died, at 55, of cancer of the breast, leaving two sons alive and healthy; while her fifth daughter died unmarried at 61, of cancer of the liver. Madame D had an only son alive and well at the age of 70.

Williams (Natural History of Cancer, 1908) has collected from the literature many examples of the multiple occurrence of cancer in families and family groups, and also added valuable observations of his own. In 370 female cancer patients he found a history of heredity in 83 or 22.4 per cent.; in 136 cases of mammary cancer there was a family history in 24.2 per cent., and in 142 cases of uterine cancer a history of heredity in 19.7 per cent. Such percentages, as Williams points out, are very high from whatever point of view they may be regarded. Butlin finds a family history of cancer in 37 per cent. of cases of mammary cancer. Numm estimates such a family history in breast cancer as 29.3 per cent., and Lemp at 23 per cent., all of these estimates agreeing fairly closely. In certain families, as in Broca's case, the cancer chances are greatly increased, fifteen to twenty times that of individuals of the general population. If the chances of cancer for the individuals of certain families are fifteen to twenty times greater than for the individual of the general population, we must concede the existence of a family tendency

to cancer, since such high percentages of occurrence in certain family lines cannot be explained on the grounds of environment, infection, or mere coincidence. Particularly is an assumption of a family tendency justified when the cancer affects the same organ or tissue of one sex through a number of generations, as in the case of Warren, the patient, patient's father, grandfather and great-grandfather all dying of cancer of the penis; and another instance reported by Earle of a patient with epithelioma of the scrotum, whose brother, father and grandfather all died of the same condition.

Williams from his own experience and collected cases, therefore, regards the statistical evidence in favor of family susceptibility to cancer as very strong. He states that inherited cancer manifests itself much more frequently in the female, although as often derived from the paternal as from the maternal side of the house. In cases of multiple family cancer there is an especial tendency for the females to be affected. He notes also the atavistic and collateral inheritance of the susceptibility to cancer, and the frequent association of tuberculosis, arthritic manifestations, and excessive fecundity. He believes that the majority of cancer patients are the *surviving members of tuberculous families*; hence advances the proposition that no inheritable condition is more favorable to the development of cancer than that which gives proclivity to cancer. Nevertheless he abstains from interpreting his collected facts in Mendelian terms, although he believes that the time will soon come when it will be advantageous to study the whole question from a Mendelian standpoint. He regards the great prophylactic question to be: "How in breeding to render a dominant tendency to cancer recessive."

Levin (*Zeitschrift für Krebsforschung*, 1912) is the first to make a eugenical study of the influence of heredity on cancer from the Mendelian standpoint. With the assistance of the Eugenic Record office at Cold Spring Harbor, Long Island, he has collected data from five families, two being fairly complete, the other three as yet fragmentary. These families are studied from the broad standpoint of the entire family line for six generations, and then by family groups in which one or more members suffer from cancer. The analysis of the family line as a whole shows that the incidence of cancer is not greater numerically than that of the general population. One thing is brought out in this study that does, however, speak for an influence of heredity upon cancer, and that is the occurrence in certain generations of cancer groups with a cancerous ancestor on either paternal or maternal side, or on both. The percentage of cancerous members in each cancerous fraternity corresponds closely to the

Mendelian percentage of members with recessive unit-characters in a hybrid generation, running in the eight cancerous fraternities analyzed from 10-33 per cent. of cancerous members to non-cancerous (Mendelian ratio 25 per cent.). Levin concludes that resistance to cancer is therefore a dominant unit-character, the absence of which creates a susceptibility to cancer. He also notes that the family susceptibility is specific for certain organs, in one family the uterus, in another the breast are the organs particularly involved. This had already been shown by Williams, who also emphasized the fact that in the males of the affected family the gastro-intestinal tract is usually the seat of the cancer, while in the female members the breast or uterus is affected.

A great increase of interest has recently been awakened in the subject of heredity in cancer by numerous observations upon the occurrence of cancer in certain strains of white mice and rats. It has been noted by a number of workers in this line that a greater proportion of spontaneous cancers occurred in mice purchased from certain dealers. While this fact was at first used as an argument for the infective nature of mouse cancer it was shown later that in the case of a strain of mice showing a high percentage of spontaneous cancers a much greater proportion of successful transplantations of the cancer could be obtained than in the case of strains showing few or no spontaneous tumors. According to Leo Loeb the incidence of successful transplantations in some strains showing a high occurrence of spontaneous cancer is practically 100 per cent. In Well's laboratory, breeding experiments with such susceptible strains of mice are being carried out on a large scale, and the facts so far observed speak for the existence of an inherited cancer susceptibility. Although denied by Bashford the occurrence of such a familial tendency to carcinoma in mice is generally accepted at the present time, because of the following observed facts: *Certain strains of mice do not develop spontaneous carcinoma, and such strains are resistant to transplantation of carcinomas from other mice; on the other hand, other family strains of mice show a high frequency of spontaneous carcinoma, and such strains give a high percentage of "takes" to transplantations.* Tyzzer has carried out breeding experiments with such strains but was unable to find that such a cancer susceptibility was transmitted according to Mendelian principles. Levin and Sittenfield (Proceedings of the New York Pathological Society, Oct., 1910) concluded from their investigations of the influence of heredity in cancer of the white rat that *resistance to the growth of an inoculable cancer in this animal behaves in the manner of a Mendelian dominant unit-character.* The observations of the part played by heredity in

mouse and rat cancer are still too limited for us to draw any final conclusions; but, with the breeding experiments now being carried on, on a large scale by a number of workers, the problem may soon be settled.

In the "*Archives of Internal Medicine*," November, 1913, I have published the results of a statistical investigation of the cases of carcinoma examined in my laboratory during the years 1895-1913, for the purpose of determining what influence heredity might have had in the etiology of these cases. During these years there were 3,600 cases of neoplasm examined in the Pathological Laboratory of the University for the purpose of diagnosis. Of these 3,600 neoplasms 1,600 were carcinomas; and it is with these 1,600 cases that the present investigation was concerned. The great majority, about 90 per cent., of the material came from the state of Michigan; and as the University Hospital is not a charity hospital, it represents very well the average population of the state. The usual difficulty of obtaining a complete family history of hospital patients exists here also, although a teaching hospital and with much greater care taken in this direction than would be carried out in the average city hospital. About 30 per cent. gave full histories with details of several generations; and it is in these detailed histories that evidence of a family tendency to cancer stands out. I have for several years been getting the impression that a family susceptibility to cancer was very striking in some families, and that in such families there was a tendency for the neoplasm to appear at an earlier age in the youngest generation, and to run a more malignant course. Whenever, then, we have had a case of carcinoma in a relatively young individual I have made an especial effort to obtain the family history. As a result our records show an increase in recent years of histories showing a multiple occurrence of cancer.

From the records of the carcinoma cases I have selected the most striking of the cases of multiple family occurrence of cancer. Four families stand out prominently because of the striking proclivity to cancer shown in three generations. Charts illustrating these families are given in the "*Archives of Internal Medicine*," but the abstract of the family histories is reproduced here.

Family G.—In this family a fairly complete survey was made of the two generations derived from a cancerous grandfather with a traditional history of cancer in his life and a grandmother with a normal family history. From these there were ten children, five males and five females. Two of the daughters died of cancer of the uterus at 55 and 40 years, while two sons died at 42 of cancer of the stomach, and a third one at 45 of cancer of the abdomen.

All five of these individuals were married to normal partners without a family history of cancer, and all had issue, as follows: Oldest daughter who died at 55 of cancer of the uterus, had ten children; one daughter operated on at 42 for "cancer" of the uterus and still living; another daughter operated on at 22 for uterine tumor and bilateral dermoids of ovary, and still living. The remaining eight children are all living and well, only two being over 40 years of age. The second daughter, who died at 40 of cancer of the uterus, had four children, two sons and two daughters, all dying of cancer, the two sons of cancer of the stomach and intestine, and the two daughters of carcinoma of the uterus. The third daughter, living and well at the age of 75, has three normal children living at the ages of 47, 50 and 55. Four children had no living issue. The eighth child, a son, died at 42 of cancer of the stomach. His wife was of normal family history. They had eight children, of whom two daughters have died of cancer of the uterus at 40 and 44 years, while the remaining six are all living and well below the age of 40. The ninth child, a son, died of cancer of the stomach when between 40 and 42 years of age. He left six children from a marriage contracted with a woman of non-cancerous family history. One daughter died at 42 of cancer of the uterus, three children died of tuberculosis between the ages of 18 and 25 years, while two others are living and well at the ages of 32 and 29 years. The tenth son died at 45 of cancer of the abdomen, most probably primary in the stomach. He left, from a marriage contracted with a woman of non-cancerous family, seven children, of whom one died at 42 of cancer of the stomach and liver, another at 47 of cancer of the intestine, while a third was operated on at 42 for tumor ("cancer") of the uterus and still lives in apparent good health. Four others are living and normal at the ages of 45, 35, 30 and thirty.

Of the forty-eight descendants of the cancerous grandfather seventeen have died or been operated on for "cancer." The preponderance of carcinoma of the uterus (ten cases) and of the stomach (seven cases) is very striking in the family history.

Family F.—In this family the paternal grandmother died of "tumor." Her non-cancerous brother had two children, both of whom died of "cancer." Her only son died at 61 of dropsy. He married a woman who had two brothers who died of cancer of the stomach. She herself died of Bright's disease at 75. Her mother died of heart disease. The three daughters of this pair who show a double family history of susceptibility to cancer all had neoplasms; the oldest was operated on for tumor ("cancer") of the uterus and is still living; the second was operated on at 51 for myosarcoma of

uterus, while the third daughter died of cystic tumor of the ovary. In this family history the preponderance of stomach and uterine neoplasms is also shown.

Family P.—The paternal grandfather had a nephew who died of cancer of the lip. In the first filial generation there was one daughter who died at 35 of cancer of the lip and a son who died at 86 of cancer of the scalp and cervical lymph-nodes. This son married a non-cancerous woman whose only sister had died at 47 of cancer of the rectum. From this union thirteen children, ten of whom (five brothers and five sisters) all died of pulmonary tuberculosis before the age of 30, while three remaining daughters had carcinoma of the breast, two dying at the ages of 36 and 42, and one operated on at thirty-five.

Family S.—The paternal great-grandfather died at about 70 of cancer of the stomach. His only son died at about 60 of cancer of the stomach, having married a woman who died at about 50 of cancer of the breast. They had six children, all of whom died of cancer; two daughters died at 80 and 60 of cancer of the breast, and another at 60 of multiple carcinoma of the breast, bladder and rectum. Two sons died of cancer of the stomach at the ages of 75 and 40, the third son dying of cancer of some internal organ, most probably the stomach. Only one son had issue, by marriage with a normal line. The only child died at 36 of cancer of the uterus. Of the eight descendants of the cancerous great-grandfather all died of cancer. As in Family P., the occurrence of carcinoma in both paternal and maternal lines apparently strengthens the susceptibility, both families becoming extinct.

A larger number of cases showing a family history of multiple occurrence of cancer through two or three generations are to be found in our records. Twenty-nine of these were selected as representative. Since the family histories are more or less incompletely given I have classed these histories under the head of "cancerous fraternities" or "cancer-generations." In general the normal members of the second and third generations are given, so that the proportion of cancerous to non-cancerous in two generations at least is exact. It was notable that the great majority of the cancerous fraternities occurred in small families; and in many of these the patient from whom the material examined for diagnosis came was the surviving member of the family line. In families showing these cancer-generations the carcinoma may appear in three or four generations, or there may be an intervening generation the members of which are not cancerous or more rarely a collateral transmission may be shown. In some cases all of the members of the small family are cancerous. By far the great major-

ity of these are females; and the family is in a large proportion of cases brought to an end by death of its female members through carcinoma of the breast or of the uterus.

The results of our study of this material may be summed up as follows: In the histories of the cancer cases coming from the state of Michigan and examined at the Pathological Laboratory of the University about 15 per cent. show a striking history of multiple family occurrence. When the difficulty of obtaining good histories is considered this proportion is relatively high; and, on the whole, corresponds fairly closely with the percentages obtained by Williams. We must conclude, then, that a definite and marked susceptibility to carcinoma exists in certain families and family generations. This family tendency is usually most pronounced when there is a history of cancer in both paternal and maternal lines. In such families there is an especial tendency for carcinoma to appear at an earlier age than in the forebears, and in these younger individuals the cancer usually shows an increased malignancy, developing more rapidly and setting up general metastases more quickly than in cases from which we can obtain no family history. Whenever we have a case of carcinoma appearing in an individual before the age of 35 we take especial pains to look up the family history with this especial point in mind to determine if there has been a history of cancer in previous generations; and in a relatively large number of cases this has proved to be the case. I therefore consider the prognosis bad in those cases of carcinoma in relatively young people who have a family history of multiple occurrence of cancer. This is also true in the cases of carcinoma coming from families where there is a history of tuberculosis on both sides. Our results corroborate those of Williams. We find that tuberculosis is the most commonly associated family disease in families having a multiple occurrence of carcinoma and that in many cases cancer terminates a family line that has suffered severely from tuberculosis. The association of the two diseases in families showing our cancerous fraternities is very striking. We also find, as did Williams, that many of these families a few generations back showed a high grade of fertility with large families of children, but that in the present generation there is a markedly lessened fertility and in many cases the cancerous individual terminates the family line. Family susceptibility to carcinoma we find to be shown in carcinoma of the breast and uterus in females and of the mouth, lip, stomach and intestines in the males. Rodent ulcer affecting some portion of the face shows frequently a history of multiple family occurrence in several generations. In the more complete family records studied the carcinoma manifests

itself in the breast or uterus in the female usually, and in the gastro-intestinal tract in the male. This specificity of location has been noted by Williams, Levin and others. Next to tuberculosis we have found cardiac and renal disease most frequently associated with a family history of carcinoma.

Giving due consideration to possible errors in diagnosis in previous generations and the difficulty of obtaining accurate histories, I am still convinced that there is a definite and well marked family susceptibility to cancer in many family lines; and I think it is very probable that if we can have better and more complete histories the multiple occurrence of cancer in family lines would be found to be very much more frequent than our histories now show. I think we are perfectly safe in concluding that certain families show a definite cancer susceptibility and that this is inherited often in a progressive rate of inheritance, the susceptibility being dominant rather than recessive, as Levin concludes from his study. I do not think that the data are at present sufficient for us to apply the Mendelian principles to cancer heredity. Some of my cases agree fairly well with Levin's, the percentage of cancerous members in each cancerous fraternity corresponding fairly closely to the Mendelian percentage of members with recessive unit characters in a hybrid generation. If I considered the data sufficiently conclusive for any generalization, I would say that they point toward the existence of a progressive generative inheritance, the running out or extinction of a family line through the gradual development of inferior stock from an inheritance of susceptibility to tuberculosis and cancer, such an extinction often developing in two generations in a family previously marked for excessive fertility and longevity.

With the growing interest in eugenics and in family records very careful attention should be paid to all of these points, and in hospitals such as the University of Michigan Hospital, where such a large amount of cancer material is seen, a special effort should be made to collect accurate data concerning the families of cancerous patients. When such data are obtainable definite conclusions may be drawn.

DISCUSSIONS

DR. CHARLES B. G. DENANCREDÉ: This paper is of great interest. The method employed by Dr. Warthin is to be commended, provided we bear in mind the fact that we never can correctly estimate the natural history of carcinoma or the unquestionable results of treatment until we understand the cause of cancer. Again, we cannot be certain of our pathologic data until two or more generations of competent pathologists have examined every specimen adequately, included in the statistics, because too many museum specimens now exist, which can yet be correctly diagnosed, which would be found incorrectly labelled if studied by a modern pathologist.

Dr. Warthin, when studying the eighteen hundred cases which have passed beneath his scrutiny during the past eighteen years, excludes two-thirds because the histories are inadequate, taking about six hundred, where the data seems fairly reliable. Of these, however, only about fifteen per cent. apparently demonstrate his views as to heredity. Of the cases with acceptable histories the majority were treated by me and in my service at the University Hospital. I regret to state that I am confident that many of the histories of my cases in the accepted class were decidedly unreliable and that of the remaining eighteen hundred thoroughly reliable accounts, if securable, might either enormously reinforce Dr. Warthin's arguments, or equally likely weaken his contentions. I have so often found my students' histories so misleading for even a clinical diagnosis, that when reliable evidence as to family history is requisite, I have to sift all the evidence myself, often being able to arrive at no conclusion or perhaps one absolutely different from that arrived at by the historian. I have a very distinct opinion regarding the lack of proof as to the hereditary nature of carcinoma, despite my early teaching that this was an unquestionable fact. Many of our convictions cannot be proved by actual evidence in our present state of inadequate information. If the experience of forty-odd years have radically changed my opinion on this point there must be reliable grounds for such a change of front, which should have some weight.

I am also inclined to give some weight to the possible failure to eliminate from our historical, and their therapeutic statistics, the fatalities resulting from operations and their complications; were these always deaths from carcinoma, or were they assumed to be because of the fatal results, without adequate histologic examinations? Again, if these patients had not died as the result of operation, might not some of them really proved to have been cures, so vitiating the mortality results? These, and other objections must in all honesty be carefully weighed when attempting to decide any question merely or chiefly by statistics. The rather curious association of tuberculosis and carcinoma, which in my professional youth was denied as a possibility, has been verified in a number of patients, the specimens of which have been reported upon by Dr. Warthin.

I have been greatly impressed by the data presented by Dr. Warthin and hold myself ready to review anew my conclusions concerning the whole subject of carcinoma.

I trust that I shall not be understood as arriving at my conclusions concerning carcinomatous heredity from the six hundred cases included in Dr. Warthin's expurgated statistics, or the probable one thousand cases where I have been the operator or have in some way been cognizant of the patients, but what I learned in my hospital and private experience of the more than twenty years before I came to Ann Arbor.

DR. CYRENUS G. DARLING: While listening to Dr. Warthin's very able address, two points came to my mind. He says that the German cancer survey was without benefit, but he has not stated that a properly conducted survey might not be useful. Why not have such a Michigan cancer survey? Why should not such an important project originate in this Society? We know little or nothing about the results of our numerous operations for this disease, except in a few cases in our own immediate neighborhood. A survey might enable us to determine some of the important facts. It would be well for Dr. Warthin to prepare a list of questions which should be answered by every cancer patient coming to the University Hospital. This paper should be left with

the house physician and made out by him as a part of the admission history.

DR. UDO J. WILE: I have been amazed at the relatively large number of cases of cancer of the skin that occur in this vicinity. In a clinic in New York in which over three thousand cases were treated each year I can recall but three or four cases of epithelioma. During the past year at the University Hospital of over eight hundred cases treated there were forty-four cases of cancer of the skin. We have been careful to note in these cases the occurrence of any family history. Offhand I should say that about 15 per cent. give a history of cancers in other members of the family. Curiously enough these have been for the most part cancers of the skin also, rather than visceral neoplasms. We have also noted that the occurrence of cancer in the patient's family has usually been on the maternal side. I should be glad to turn over these records to Dr. Warthin should he desire them.

THE OCCASIONAL PRESENCE OF THE APPENDIX VERMIFORMIS ON THE LEFT SIDE OF THE ABDOMEN, WITHOUT TRANSPOSITION OF THE VISCERA EXPLAINED. ILLUSTRATED BY AN OPERATED CASE.

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(From the Surgical Clinic, University Hospital, Ann Arbor, Michigan.)

A brief preliminary summary of the facts pertaining to the development of that portion of the intestinal tract with which we are now concerned will obviate later explanations, will probably explain certain errors made when reporting cases, and, it is to be hoped, will prevent unnecessary manipulations and some disastrous errors when operating in the abdominal cavity. Only approximate estimations of the time after impregnation when the changes described are to be noted can be given, because they continuously progress, are not sharply defined, one observer considering as recently accomplished that which another considers in process of evolution.

About the close of the tenth week of gestation the somewhat left sided practically straight intestinal tube has assumed an U-form and the cecal bud and the rudiments of the appendix are recognizable, and the cecum occupies approximately the umbilical region. About the close of the fourth month the cecum reaches its usual prenatal position beneath the right lobe of the liver by a process of so-called rotation, passing in front of and across the superior mesenteric artery and duodenum, subsequently to descend into the right iliac fossa, this descent occurring, according to some observers about the sixth month of intrauterine life; according to others this may not occur normally until after birth.

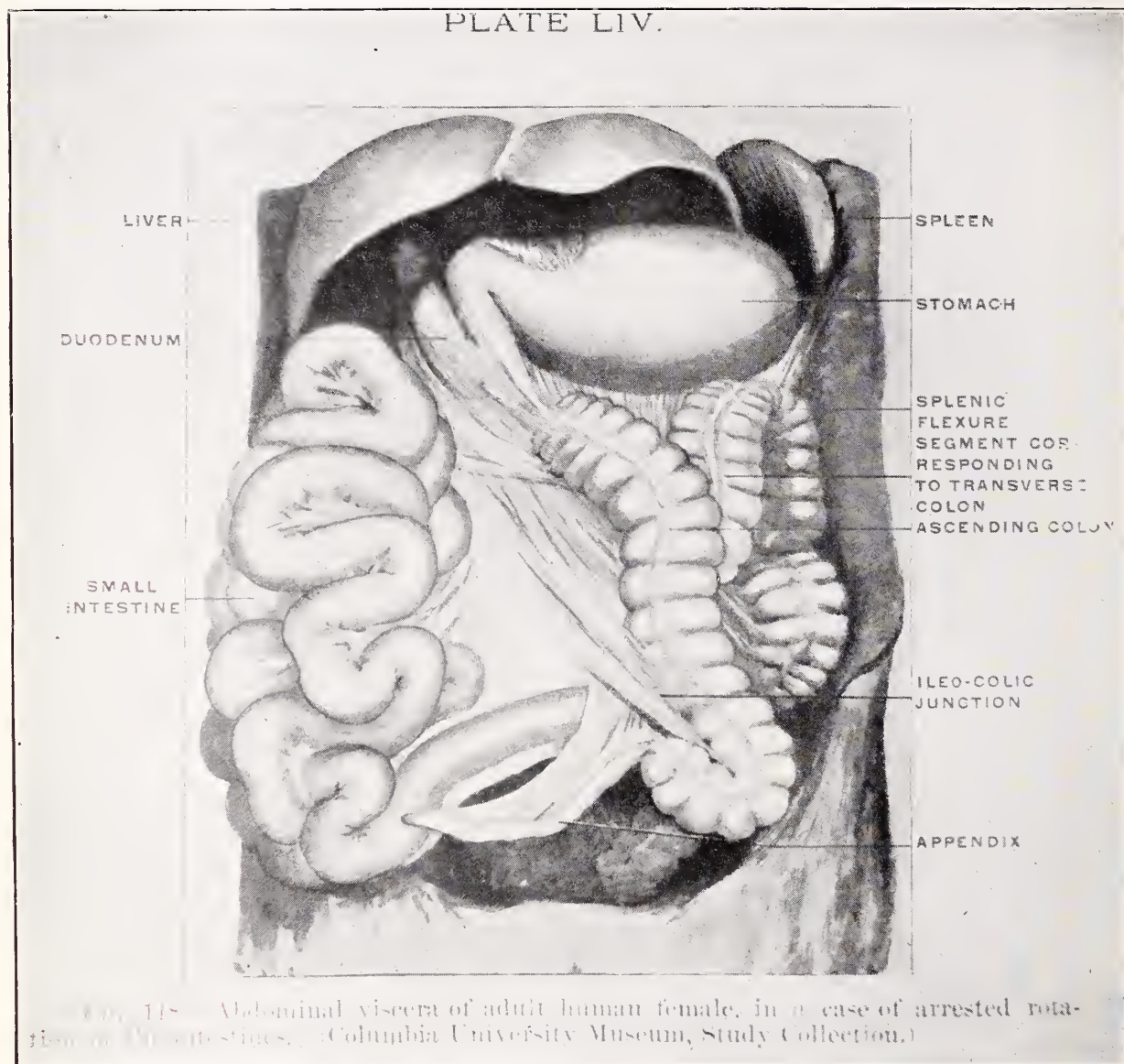
While the few photographs¹ presented by no

1. George S. Huntington, *Anatomy of the Human Peritoneum and Abdominal Cavity*, page 60.

means exhaust the possible abnormalities of location and course of the colon, they should prove adequate for the present purposes. Numerous still more complicated and puzzling possibilities can obtain², induced by the traction of inflammatory adhesions alone, or from the effect of these, superadded to congenital variations; with such we cannot at present concern ourselves.

The patient, Paul B., age five, was admitted

and increased in severity until October 25, when it was somewhat lessened for the next three days, but on October 28, the day before admission, it returned with renewed violence. The temperature on admission was 100° F., the pulse was 120, and the leucocytes were 16,000, increasing on the day of operation to about 18,000. General distention and rigidity of the abdominal walls was present, both distinctly more marked on the left side. There was a



to the University Hospital October 29, 1913, having been ill eleven days. On October 18, he complained of headache, but so far as could be gathered nothing else was noted. The next day he said that he had severe pain in the abdomen, locating it chiefly on the left side. After the administration of medicine by the mouth he vomited once. The pain continued

doubtful impairment of resonance with slightly increased resistance and tenderness over the usual site of appendicitis as compared with the more central portions of the abdomen. A left-sided mass was continuous with a median area of dullness which proved to be the bladder. Withdrawal of nine ounces of urine with a catheter removed this median dullness, but the left sided mass remained. My assistants believed that they had detected per rectum a right sided pelvic induration and certainly peritoneal

2. For diagrams of a number of these see an excellent article by Carl E. Black in the *Annals of Surgery*, Vol. 56, page 880.

tenderness in that situation. Under anesthesia the problematical right sided dullness on percussion and mass could not be certainly verified, but was believed probably to have been caused by the tense condition of the parieties; the left sided mass was now more readily detected.

Every operator occasionally meets with cases of appendicitis where the tip of the organ crosses to the left side of the abdomen, or at least the main inflammatory focus seems to be located in this region when first examined by

long since been said about appendicitis, but the importance of recording cases like my own lies in several facts. First, when a right sided source of inflammatory abdominal trouble is not clearly indicated by the detection of a mass in this region by external palpation or rectal examination, while a left sided induration exists, any exploration must be attempted by such a method that by suitable modifications, both sides of the abdominal cavity can be reached. Again, when search in the right in-

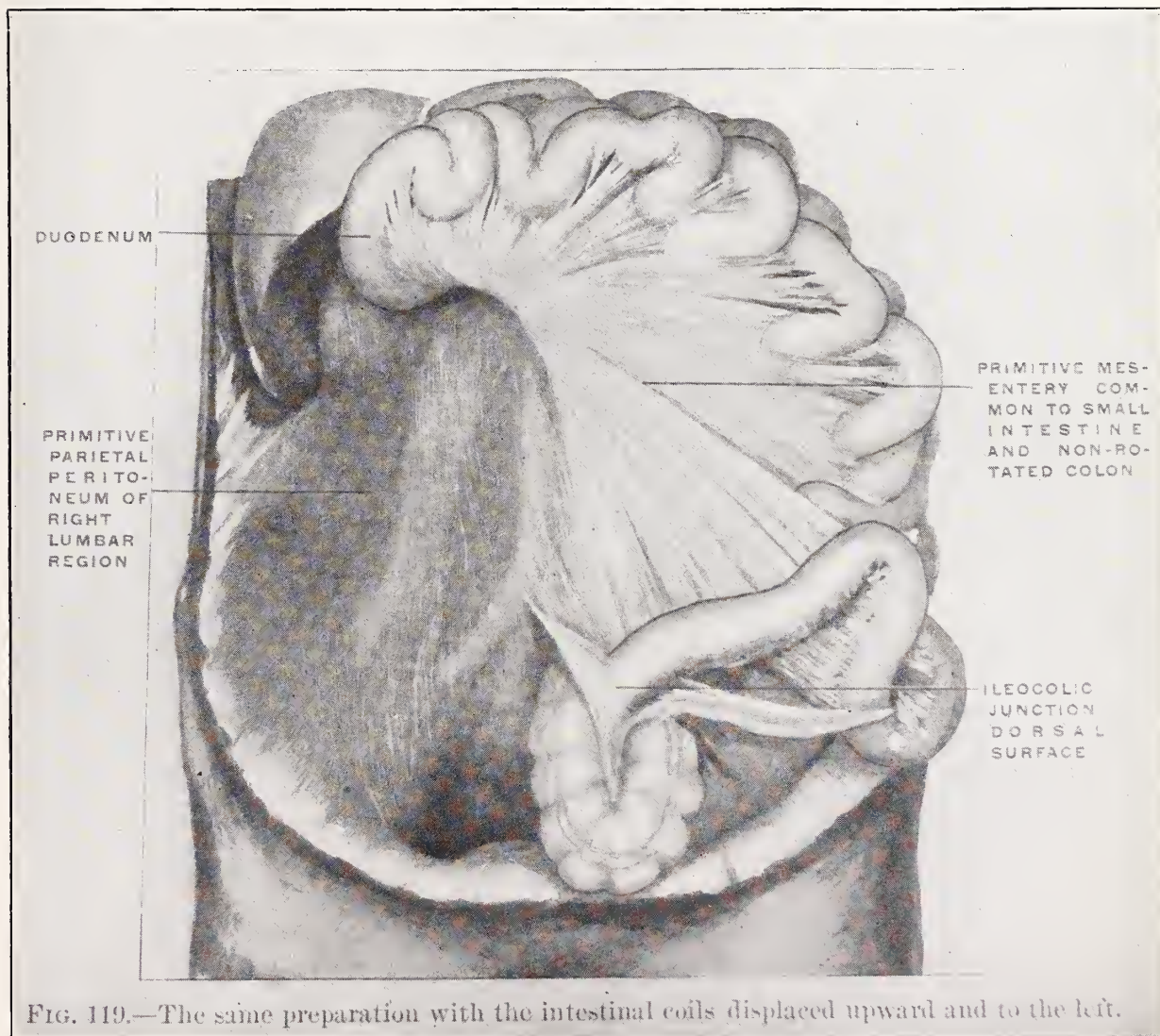


FIG. 119.—The same preparation with the intestinal coils displaced upward and to the left.

(Columbia University Museum, Study Collection.)

the surgeon. Of course with complete transposition of the viscera, which is rare, appendicitis should be left sided, but a left sided appendicitis is more often spoken of than seen, this condition being somewhat simulated by a suppurative diverticulitis. This latter disease however, does not give rise to confusion in young children because the precedent pathologic alterations of the colon wall are not believed to occur in early life, these being more usually seen in adults, especially in middle life or advanced age. One would think the last word has

guinal regions and hypochondriac regions, in cases diagnosed as appendicitis does not promptly enable the operator to locate the caput coli, or an inflammatory mass, search should at once be made on the opposite side. In my case a distended rigid condition of the abdominal walls rendered an accurate examination difficult, while the reported detection of a right sided mass by palpation and per rectum obscured the diagnosis. Still further, a greatly distended bladder fusing with the left sided mass was open to the possible, although un-

likely, explanation that this organ had been incorporated with an inflammatory mass and dragged over, the trouble originating in a normally located appendix with its tip extending sinistrally across the abdomen.

My first impulse therefore to make a left sided incision was resisted, and a right sided one splitting the rectus was made. Search for a normally placed caput and appendix was rapidly completed, only somewhat congested coils

active result was secured, the steps of which will not be detailed because they are of no particular interest. A careful study of the relations was readily made out, the caput occupying the same position in the iliac fossa as it usually does on the right side, the ileum entering normally, the usual amount of this intestine filling the true pelvis. The colon ascended upwards towards the spleen if it did not actually reach it, seemingly forming a splenic flexure instead

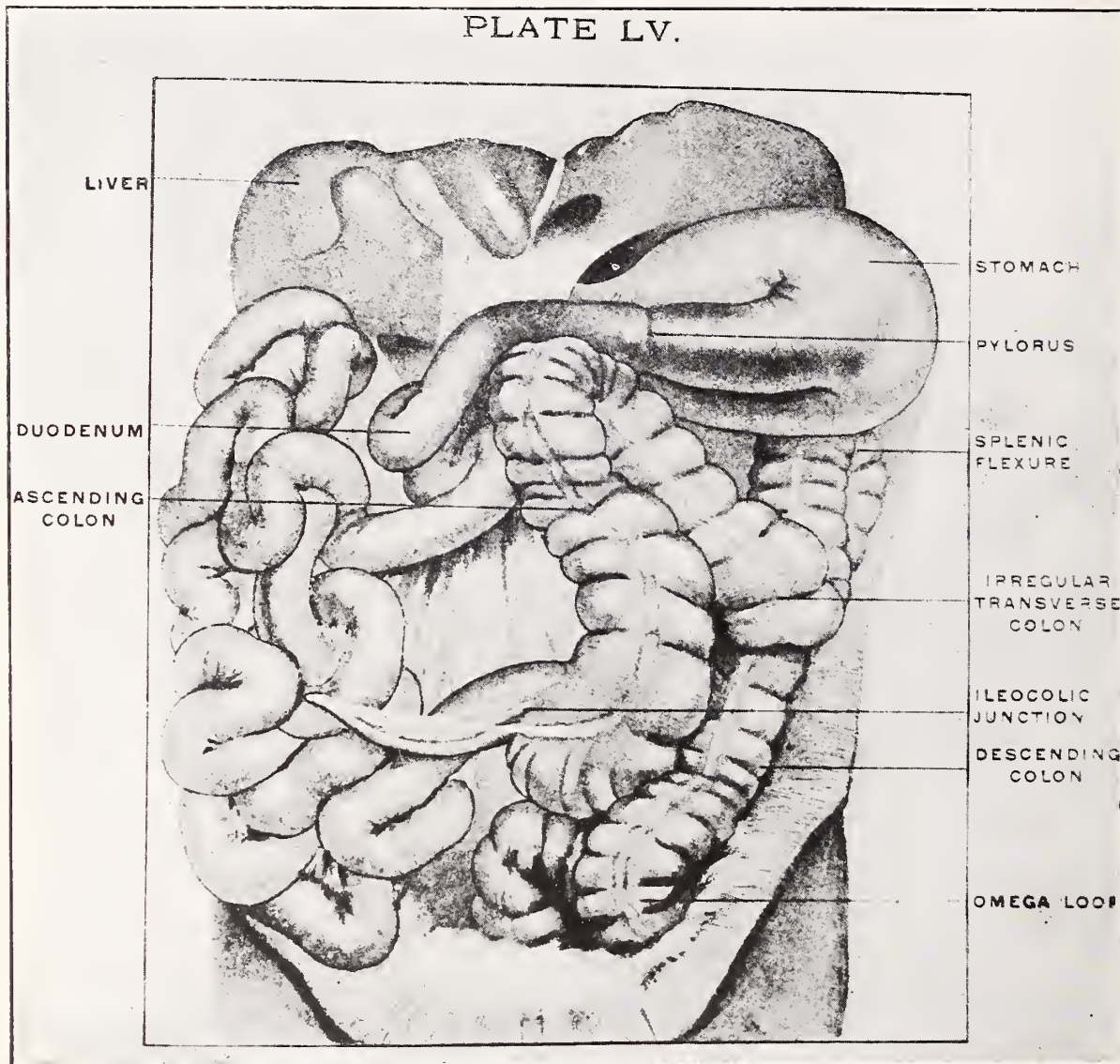


Fig. 120. Abdominal viscera of adult human male; non-rotation of intestine.
(Columbia University, Study Collection.)

of small intestines being found, even normal omentum being absent on this side. Per contra, on the other side the usual mass of omentum adherent to everything in its neighborhood was found, imprisoning the caput coli with a perforated appendix surrounded with pus, containing a loose concretion.

While it was not so easy to conduct the subsequent manipulations as if the incision had been made more to the left, a satisfactory oper-

of an hepatic one. Not wishing to infect the remainder of the abdomen by free handling in the presence of pus, the relations of the splenic and hepatic flexures, and the transverse and descending colon were not made out exactly, but as far as observed were otherwise normal although displaced so as to simulate partial transposition, but a study of the exact conditions shown by the illustrations reproduced from the actual conditions found in cadavers

show how readily I may have been deceived, except as to the relation of the caput, appendix, and ileum.

Figs. 118, 119, 120, 121 will show the conditions presented by non rotation of the colon in the adult, while Fig. 123 shows non rotation of the cecum yet with the appendix in the right iliac fossa. Fig. 122 shows what was very possibly the condition in my case, contrasting well with the almost normally placed appendix although the rotation of the cecum was partially arrested. The perfect or imperfect rotation of

some dullness. Examination per rectum revealed a cystic mass. The patient had been taking morphine and complained of no pain. However, on careful inquiry it was found that the patient had not passed urine for the last thirty-six hours. The patient was catheterized, and about ten ounces of urine drawn off. Subsequent examination revealed no mass in the rectum, and the dullness on the right side had disappeared. Apparently the distended bladder had been the cause of the right sided findings, a fact which should always be taken into consideration in other obscure cases. One other interesting point is the efficiency of an exploratory incision. Through a right rectus incision it was possible to attend to all conditions arising in the left side of the abdomen,

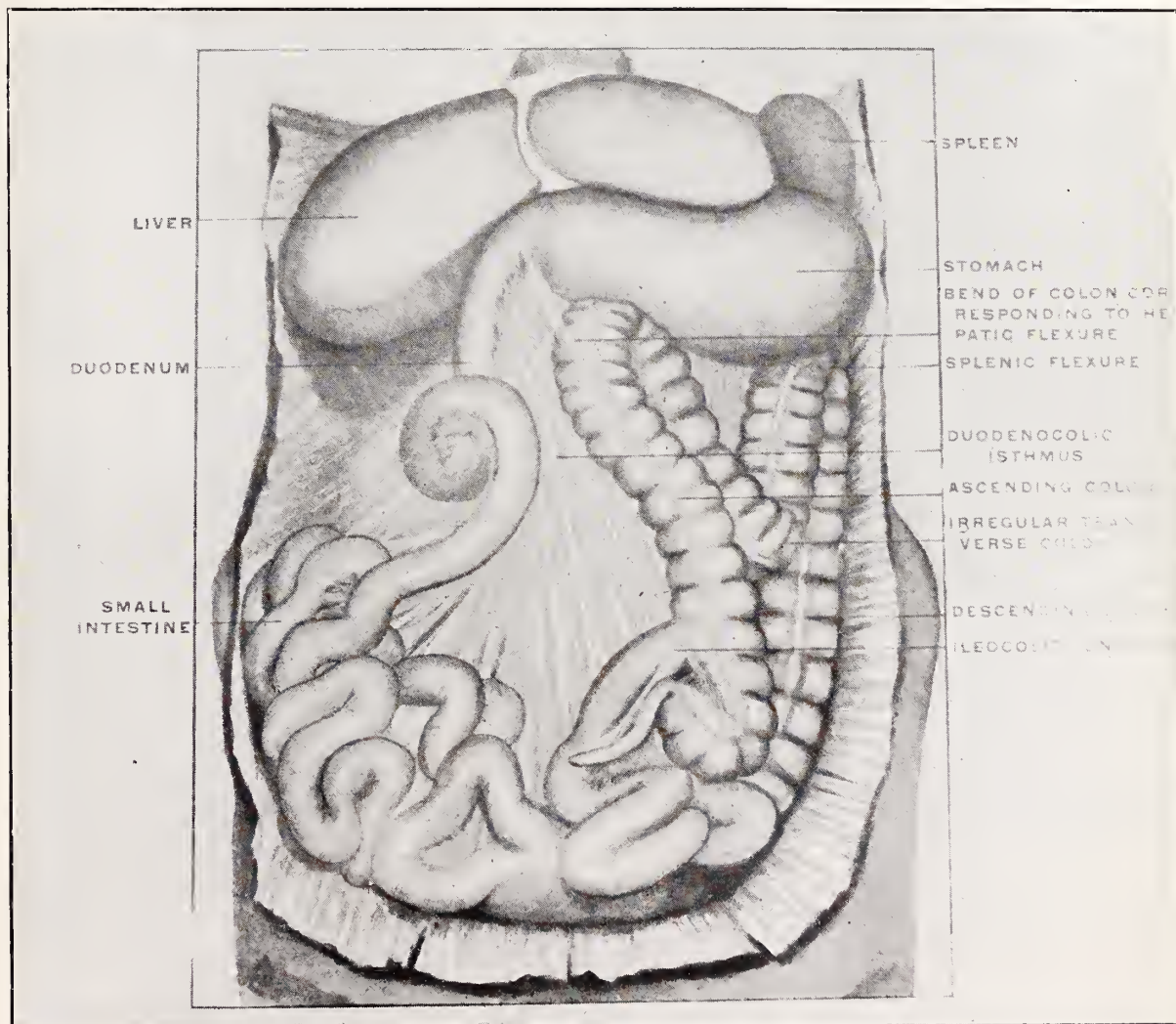


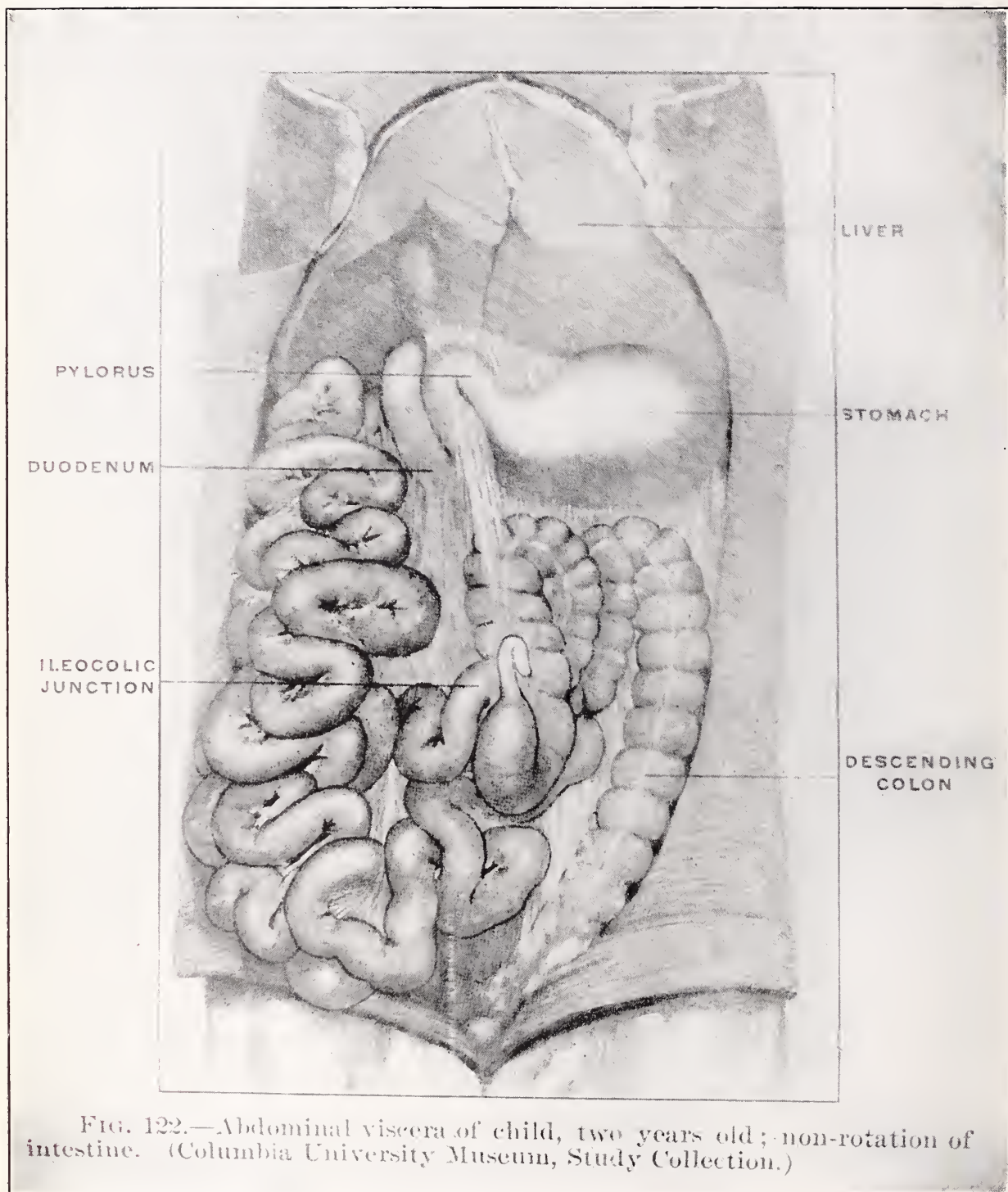
Fig. 121. Abdominal viscera of adult human male; non-rotation of intestine. (Columbia University, Study Collection.)

the cecum doubtless accounts for some of the common locations of the appendix which are too often described as abnormal.

DISCUSSION.

DR. WALTER A. HOYT: This certainly is a very interesting case, and emphasizes the desirability of taking a careful genitourinary history, not alone to rule out any disturbance of the genitourinary tract, but to enable one to make a better diagnosis of abdominal conditions. I saw this patient when he first entered the Hospital. Examination at this time showed a mass in the left side. Percussion over the right side revealed

which as had been shown extended well into the iliac region. From the first, the patient did not drain well, although a tube drain was placed in the main incision, and a counter drain placed in the left side. Bichloride dressings were applied, but did not bring about an increase in the drainage. On the third day when a great deal of drainage should have been present, there was none at all. The tube drains were syringed out with sterile salt solution, and it was found that both tubes were blocked by broken down tissue and pus. The patient straightway started to drain, and had no further trouble. The patient's recovery after this was uneventful, and he was discharged day before yesterday in good condition.



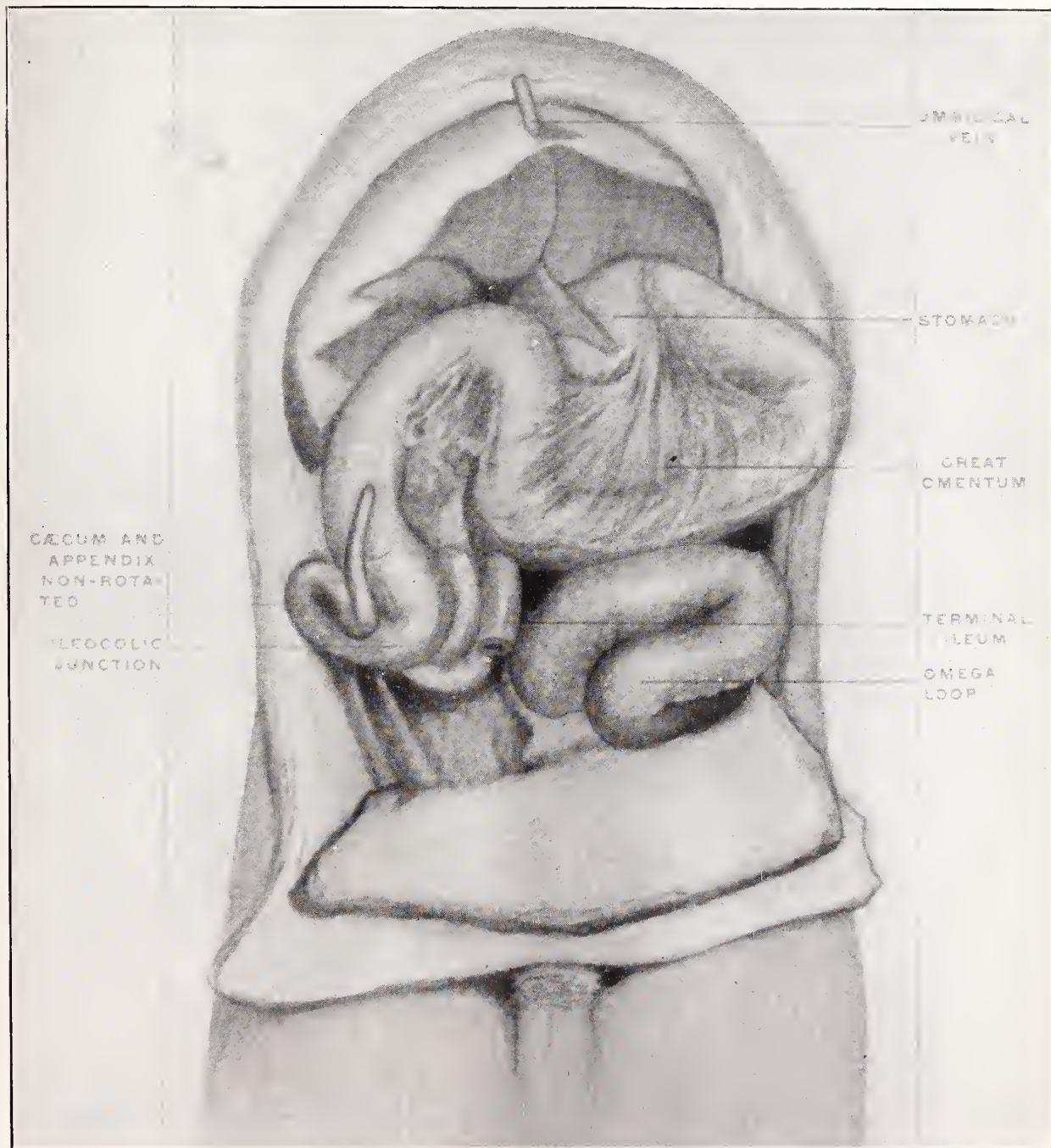


Fig. 123. Human foetus at term; abdominal viscera, hardened in situ; non-rotation of the caecum.
(Columbia University Museum, No. 1813.)

WOUNDS OF THE FEMORAL ARTERY.

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My first real intimate acquaintance with a wounded artery of the lower extremity took place several years ago under the following peculiar circumstances. The owner of this artery, a young man of twenty, was standing on the sidewalk in his home town. It was the evening of the Fourth of July and the town, though nearly bursting with patriotism, did not possess a cannon.

The people were able to make an old fashioned noise by firing an anvil. More noise was desired and the noise could be increased if the hole in the anvil could be made to hold more powder. To meet these indications, the hole was prolonged by using a nut such as holds the wheel to the axle on a lumber wagon. This hole was filled with powder and the noise was a success but the force of the explosion tore the nut in pieces, all but one piece passing harmlessly away in the air. The important piece came toward the young man on the sidewalk, struck the median flap of his trousers and entered the flesh above and to the left of the pubes.

The size of the projectile and the depth to which it had penetrated the tissues was a matter for speculation, as only a small wound appeared upon the surface, where the soft parts had at once closed around it so that a probe, when inserted, did not come in contact with the metal.

The hemorrhage, at first sharp, was soon controlled by an antiseptic compress and the patient was placed in bed in a recumbent position where he remained for a week without any unusual happenings. About the eighth day when he arose to a sitting position as he had done before, there was a sudden gush of blood from the wound, which ceased, however, as soon as he again resumed the recumbent position.

The same accident happened again later in the day and I was called by his physician. The leg was cool and a little swollen but no signs of infection were present. There was no sign of pulsation in the femoral artery below Poupert's ligament, so I decided that the iliac externus was wounded and that the missile blocked the opening or pressed upon the vessel.

I enlarged the abdominal wound upward until I could introduce my finger, feel the relation of the missile to the vessel, also compress the vessel above the wound with my finger below the vessel and my thumb on the skin outside. Thus prepared I removed the piece of iron. At once, there was a large spurting

stream of blood, which, owing to my being prepared, was easily controlled, but at the same time confirmed my suspicion of a wounded iliac artery. I directed my assistant to cut down upon the vessel below my point of compression and ligate it. This was easily accomplished and the hemorrhage was completely controlled.

I did not ligate the vessel below the point of injury because it was already plugged with a clot eight days old and would be safe unless disturbed by infection. Also I did not wish to invite infection by disturbing the wounded tissues more than was necessary. I thought this an unusual condition at the time, a missile tearing a hole in a main artery, entirely blocking the wound, thus preventing severe hemorrhage and at the same time completely shutting off the circulation below. The treatment was unique in that a wounded iliac artery was ligated above the wound only, to control hemorrhage.

The missile was one half of the large nut that had been used to increase the length of the hole in the anvil. Collateral circulation had been so well established during the week preceding my ligation, that recovery took place without disturbance to the leg.

Another important experience was with the femoral artery in 1898, when A. A., a lad of 16 years, entered the University Hospital because of an arteriovenous aneurism on the right side about four inches below Poupert's ligament. This pulsating tumor followed an injury incurred five years before by accidentally plunging a sheep shears deeply into the thigh, wounding at the same time both artery and vein. The wound was dressed and the patient was placed in bed. He seemed to be making a good recovery but two weeks after the accident he got up and walked a little. While returning to his bed he had a sharp pain at the seat of the wound. He felt a buzzing sensation and soon discovered that a swelling as large as an orange had formed at that point. He remained in bed about one month longer and the tumor diminished in size. When he entered the Hospital it was larger than a hen's egg and a distinct thrill could be felt in the large veins of the leg as well as in the tumor. Both artery and vein could be felt pulsating above the injury.

He walked on this leg for nearly five years and probably would have continued at his work as a farm laborer if an ulcer had not appeared one month previous on the inner and lower part of the thigh as a complication. This ulcer not only refused to heal but grew larger. As it was in the immediate neighborhood of pulsating veins, he had been warned, that these might break at any time and result in death from hemorrhage. This brought him to the Hospital and he came expecting an amputation,

but was willing to accept ligation instead, or any operation, which might save his leg.

In January, 1897, Dr. John B. Murphy of Chicago, published in the Medical Record a number of experiments on the surgery of the arteries and two operations upon the femoral vessels. These reports were very inspiring and contained the first known successful end to end suture of a severed artery.

His first case was a wound of the internal saphenous vein which was closed by continuous suture. The femoral vein was also injured and sutured in like manner. The femoral artery was not sufficiently damaged to require operation, although a piece of its surface was torn. The wound healed, but one week later a tumor formed, which had to be opened and a clot four inches long turned out. The femoral artery was found to be eroded for more than an inch on its inner side and resection of this vessel became necessary. About one inch and a half was removed and the ends ligated. Two ligatures were applied above and one below.

The second case reported at the same time was a gun shot of the femoral artery, causing an aneurismal tumor. This was operated three weeks after injury by resecting the vessel and suturing the ends together. The wound in the artery was three-eighths of an inch long and one half inch was removed. The proximal end was inserted into the distal end and sutured in place. The femoral vein was also sutured. The patient is said to have made a good recovery.

I had a vision of suturing the vein in my case but did not finish it that way. An incision about six inches long was started just below Poupart's ligament and carried over the tumor in the line of the vessel. My dissection first exposed the vessels above the tumor and a ligature was carefully placed around the artery and another around the vein for future use.

The vessels were then exposed in like manner below the tumor and ligatures placed ready for tying. The tumor was then exposed but the vein was greatly enlarged and the relations to the artery were so intimate that I was obliged to tie my ligatures and remove the sac. The patient was put to bed with the leg elevated and well protected with cotton for several days. At the end of two weeks he was allowed to let it hang down for a short time to test the circulation and when he left the Hospital it was in good condition. This leg had five years' preparation for a feeble circulation and bore it well.

Another patient with injury to the femoral artery, Mr. B., of Battle Creek, was admitted to the University Hospital, June 22, 1913.

He was twenty-five years old and gave the following history concerning the formation of a tumor on his right leg: Three weeks ago, while repairing a shoe with a pocket knife, the

knife slipped and the blade, which was about one and one half inches long, entered full length into the right thigh on a line of the femoral artery above Hunter's canal about five inches below Poupart's ligament. The immediate hemorrhage was stopped by tying a rope tightly around the limb above the point of injury. When the rope was removed it was dressed with a compress and a tight bandage. This dressing remained in place three days, when it was removed and was replaced by a similar dressing, which was allowed to remain for the same length of time. The whole limb was swollen and painful, but there was no suppuration, and the wound healed without signs of infection.

Present condition: The whole extremity is swollen and the patient is unable to walk. There is a tumor about the shape and size of a pear and the surface is reddish purple in color. There is a scar on the most prominent point which shows where the knife entered the thigh. Pulsation can be felt in the veins in the vicinity of the tumor and a distinct bruit or thrill is very pronounced in the tumor itself. There is a numbness below the wound, which extends well down the inner side of the leg. The tissues are tender and sore and the patient complains greatly of pain which seems to radiate from the tumor.

Diagnosis: Aneurism of the femoral artery, due to a knife wound of that vessel.

The patient was placed in bed with the limb elevated and was carefully watched for three days to see that no suppuration was pending, also to favor the reduction of the swelling. The leg had been injured sixteen months before in a railroad accident and the patient informed us that some swelling from this accident remained when the present one occurred.

With rest and elevation, the swelling decreased but the tumor remained as prominent as ever. The operation was performed on June 25, 1913, four days after the patient entered the Hospital. After the usual cleansing, the femoral artery was exposed about three inches above the point of injury and a Crile clamp applied with sufficient pressure to prevent any flow of blood. About two inches of the artery was exposed below the tumor and another clamp was applied. The tumor was then opened and the wound in the vessel exposed. The laminated clots, which formed the walls of the sac were carefully removed until healthy tissue was found. The wound was little more than half an inch long and directly in the line of the artery. There was no enlargement of the vessel at this point but the edges of the wound were nearly one twelfth of an inch apart in the middle.

After removing all of the clot and the newly formed tissue, the edges of the wound of the artery were freshened by scraping with a nar-

row sharp knife. An attempt was then made to suture the wound by using a very fine needle and white silk such as is put on the market by the supply houses for that purpose, but this was a failure. We were not successful in passing the first stitch because the needle broke. We succeeded in passing the stitch with a second needle, but in tying it the thread broke. These were then discarded for the fishhook needle and ordinary fine black silk thread and we were able to place and tie all the necessary stitches without breaking either thread or needle. Five stitches were employed, they were placed well back from the edge of the wound and passed through all of the coats except the intima. In tying each suture care was taken to approximate the edges of the incision without unduly narrowing the vessel. The lower clamp was then removed and the blood allowed to enter the vessel from below. There was slight oozing from one point which ceased after sponge compression for five minutes. After waiting fifteen minutes for a coagulum to form, which would seal the vessel before full pressure of the blood stream from above was allowed to enter, the clamp was partially loosened, the blood flowed through and there was no leakage. Before the clamp was entirely removed, the sheath of the vessel and the adjacent tissues were closely folded around the point of injury and sutured in place with fine catgut. The skin was sutured up to the upper Crile clamp and this was removed some time later.

There were some bleeding points at the upper angle of my incision so deep that an extension of the incision would be necessary in order to ligate them. Instead of doing this, the hemorrhage was controlled by two forceps which were left in place and the upper part of the wound was left open for the following reasons: To allow the forceps to remain on the vessels, which could not be ligated; To readily detect any leakage from the repair; to allow drainage of damaged tissues, which might easily become infected and in turn infect the vessel wound if fluids were allowed to accumulate in contact with the sutures; Last of all that the vessel could be promptly secured in case of secondary hemorrhage.

The patient was put to bed with the limb flexed in a comfortable position and the knee supported upon pillows. When the patient became very tired and suffered pain because of the fixed position codeine was given. The forceps were removed at the end of twenty-four hours. The loose packing was removed on the third day and the wound closed. From this time recovery was uneventful. The temperature arose to 101 on the third day and remained at that point but a short time. Pulsation was good in the posterior tibial artery, which showed that the operation was a success. Twenty-one

days after operation, he was allowed to walk about and left the Hospital July 22, just one month after entering.

Here are some of the lessons which I learned from this operation: That any accessible wound of the large vessels can be repaired by using an ordinary fine needle and thread. That the required material which is furnished by the trade may do very well for laboratory purposes but cannot always be depended upon in actual practice. That the formation of clot will help to seal the slight remaining wounds if the clamp is closed and compression is maintained over the point of leakage for a longer time than is ordinarily required for the coagulation of blood. That the upper clamp should be slowly and carefully released after the rest of the wound has been closed. In a doubtful case, a provisional ligature should be left in place on the vessel above the wound, which can be closed or tied immediately in case of severe leakage.

The pathologist reports that the tissues from this case, particularly the inner layer, have the appearance of the walls of an abscess. *Trichinae* were also found in these tissues.

Wounds of the femoral, though frequently seen in military surgery, are of rare occurrence in private life. Bryant and Bucks surgery published in 1910, reports twelve cases of suture of lateral wounds of the femoral alone. If other cases have been reported in this country since that time I have failed to find the reports. There are very few cases of arteriovenous aneurisms of the femoral reported. Lund of Boston in 1908 reported a case of stab wounds of both femoral artery and vein, which were successfully repaired nine days after the accident. Sherman of California reported a similar successful case about the same time. Both of these cases had a double injury to the artery and one to the vein, the knife being carried through the artery and into the vein.

G. T. Vaughan of Washington D. C., in 1910 reported a double wound of artery and vein three inches below Poupart's ligament, which was repaired eighteen days after the accident. Though the vessels were diminished in size by the repair the recovery was good with pulsation.

Quite recently a number of attempts have been made to cure gangrene of the lower extremity, or at least prevent its extension by establishing an arteriovenous circulation in the femoral region. San Martin was the first to try it by making a lateral anastomosis between the femoral artery and vein. Hubbard in 1906 made an end to end anastomosis of artery and vein but without success. Muller of Philadelphia, collected ten cases in which the operation had been done in various ways with poor success.

These attempts, though many failed, have

developed some good ideas about the methods of operating. McMillan and Stanton of Schenectady found by sad experience that wide separation of a vessel from its sheath might result in necrosis of the vessel itself.

Matrass or continuous sutures may be employed according to the conditions of the parts or the fancy of the operator. The continuous suture is employed not only to repair lateral wounds of the artery, but circular cuts and resections as well.

Ordinary sewing needles straight or curved, may be used provided they are not too large. Fine silk, white or dyed is commonly used. The white is preferred because the dyed silk loses its strength in the process of coloring. Catgut has been discarded as it absorbs too soon for safety. The threads may be smeared with sterile vaseline, to make them run smoothly and to prevent kinking. The vaseline may also be applied to the repaired wound, to fill small openings and favor the formation of small clots.

Of all the blood vessels the femoral artery is best fitted for surgical operations. While its exposed position makes it liable to injury, it is accessible and easily repaired. It has the thickest walls of any vessel except the aorta. It is more frequently injured than any other of the large vessels except the axillary and has a larger number of successful repairs to its credit than that vessel.

Much that I have said concerning surgery of this artery applies equally well to the other vessels.

DISCUSSION.

DR. CONRAD GEORG, JR.: I desire to compliment Dr. Darling upon his brilliant success with this operation. I have had similar experience in my experimental work upon the suture of blood vessels. First the needle and then the sutures would break and the latter were very difficult to tie, so I can appreciate the difficulty that Dr. Darling had with this operation. I spent about two hours in suturing the common carotid artery of one dog to the external jugular vein of another in an attempt to perform a direct transfusion of blood. Furthermore, this operation confirms the opinion I have always held, as a result of my experimental work upon the blood vessels, that if I should ever perform this operation upon the human being I would use a stronger suture than that recommended by Carrel and Guthrie for experimental work upon dogs. In the human being we have larger vessels to deal with and a stronger force of blood stream than in dogs, which these sutures must resist and a small suture will not stand the strain. The needles I have used for this work are the No. 12 Kirby needle, which is much smaller. I had difficulty in purchasing the latter needles as none of the wholesale houses in New York or Philadelphia had them. Eventually I had to send to London, England, where they are made. These needles are the smallest I have ever seen and will

break in your hand if you exert very much pressure upon them. The operation of suturing blood vessels is an extremely difficult one. The suture which does not include the intima is the preferable one where it can be used. As the technic of end to end anastomosis is slightly different from lateral suture I will describe it. In the first place the vessel is prepared as Dr. Darling did by putting on Crile clamps or some similar instruments protected with rubber to stop the flow of blood through the artery while it is being repaired. Great care is necessary in doing this for fear of injuring the intima which is fatal to the operation. The vessel is then cut through and all blood clots washed out with normal saline solution. Next the adventitia is grasped with a fine pair of forceps drawn over the end of the vessel and cut flush with the end when it will retract and leave the end of the vessel clean for suturing. None of the adventitia must be allowed to come between the sutures as it will result in the deposition of fibrin and the formation of a thrombus.

I would like to mention two cases of blood vessel suturing which have recently been reported in the literature. The femoral artery was not among the vessels operated on, but the principles are the same. In the October number of the *Annals of Surgery* is a case reported by Dr. Sherrill of Louisville, Kentucky. It was a backward dislocation of the elbow accompanied by considerable swelling of the forearm and there was no pulse in the radial artery. A rupture of the brachial artery was suspected and even though the arm was immersed in hot water the collateral circulation was not established at the end of three hours. The surgeon, therefore, concluded that the patient would lose his arm unless a suture of the artery could be made. Incision was made to the wounded vessel which was found completely divided and the ends filled with blood clot. He reduced the dislocation and sutured the artery and the circulation in the arm was gradually restored.

There was another case recently reported by Danielson of Germany which is of great importance because it opens a new field for the surgery of the blood vessels. Hitherto it has been supposed that the operation had to be done under aseptic conditions in order to prevent the much dreaded thrombosis with metastasis when operating in the presence of infection. Danielson, however, operated in the presence of infection and obtained a good result. The case was one of a stab wound of the axillary artery. The attending physician applied a tourniquet around the shoulder and sent the patient to a surgical clinic in another town, without having dressed the wound. It was five hours after the accident before the patient arrived at the hospital. The arm was cold and no pulse could be felt in the radial artery. Upon loosening the tourniquet the blood spurted out of the artery in a stream so that it was necessary to reapply the tourniquet. The surgeon then sutured the artery. The wound was drained because of the possible presence of infection. The next day the pulse could be felt in the radial artery. There was a high fever and a free discharge of pus from the wound which gradually healed by granulation. In this case there was no formation of a thrombus. That the results in this case were not due to the gradual formation of a thrombus and the establishment of the collateral circulation is proven, in this surgeon's opinion, by the fact that a pulse in the radial artery could be felt soon after the suture and continued afterwards. It thus appears that we can suture blood vessels with safety even in the presence of infection.

REPORT ON THE DEPARTMENT OF ROENTGENOLOGY, UNIVERSITY HOSPITAL, ANN ARBOR, MICHIGAN.

JAMES G. VAN ZWALUWENBURG, M.D.

Clinical Professor of Roentgenology, University of Michigan.

I have been asked to report on the progress in the Department of Roentgenology. Having visited the place you are all familiar with the progress made in the matter of equipment and all have opinions concerning the character of the work we are doing. We prefer to let it speak for itself.

Progress is a relative matter and implies a starting point and a goal. We started where progress left off in 1906. For that time we had a good equipment. It was not extensive, but its quality and efficiency were good and adequate for radiography as it was then practiced. From that time, until June, 1913, progress was retrograde, both in the character of the work, and in the physical condition of the equipment. Repairs had been woefully neglected, and some valuable apparatus had thereby fallen into disuse.

In the mean time, the practice of roentgenology had made remarkable strides. This is partly due to a better understanding of the physical principles underlying the application of the X-ray, and partly to the improvement in apparatus. Seven years ago, the radiographer was limited by the shortcomings of his generators. This is no longer true. At the risk of being too technical allow me to explain.

The X-ray tube has distinct polarity and requires an unidirectional current. Its resistance is very great and it requires a voltage of from 35,000 to 90,000 volts to excite it. The X light given off is a small fraction of the energy supplied to the tube, and relatively large currents are required for picture taking. It has lately been found that the penetration of the X light depends solely on the voltage maintained at the terminals while the volume of rays given off is a direct function of the current. The product of the voltage and the current measures the power consumed.

The static machine gives a perfectly unidirectional current, but its power is limited by the fragility of the material from which it is constructed. Their efficiency is further reduced by their unreliability under varying atmospheric conditions.

The X-ray coil produces an alternating current. In one direction the impulse is of high potential, and low ampereage, in the opposite direction it is of low voltage and relatively high ampereage. The problem of suppressing the latter current is a very vexing one, which has never been satisfactorily solved. The "inverse current" has until recently been the roentgen-

ologist's incubus. The coils themselves can be made in large sizes, but the output is strictly limited by the capacity of the interrupters, which are necessary with them.

The interrupterless transformer of today supplies an absolutely unidirectional current and can be built in large sizes. Twenty horsepower machines have been placed on the market. No tube at present made will carry a load of such magnitude and six to ten horsepower appears to be our present working limit. With the interrupterless transformer we have an adequate supply of suitable current and we are placed in the position of being limited only by the capacity of the tube.

Two great obstacles to an extension of the radiographic field were everywhere recognized, the lack of sufficient power and the unfortunate necessity of using penetrating rays. Power means speed and shortened exposures. In 1903, when one and two minute exposures were the rules in a search for renal calculus it was admitted that only from five to seven per cent. were demonstrated on the plates. Today with half-second exposures an operator is dissatisfied with an average below 95 per cent. The explanation lies in the fact that movement of the calculus, respiratory and otherwise, is practically nil during so short an exposure, whereas with the old technic, its shadow was spread over considerable area and became lost. The principle is of course the same as that in photography where a long time exposure of a fairly busy street will give a picture free from either pedestrians or vehicles, while a "snap shot" will show them all in sharp detail. Radiography of the stomach and intestines were impossible, because the peristaltic movement could not be controlled. Intensifying screens were introduced some six or seven years ago, and were soon regarded as necessities. The early screens reduced the time of exposure to about one-fourth and they have since been improved to about twice that efficiency.

Less penetrating rays were very essential because they give vastly greater contrast in the radiogram. They make certain the demonstration of relatively permeable calculi and make possible a certain amount of soft tissue differentiated. Unfortunately, soft rays require greater volume, involve more inverse, more heating of tubes, and longer exposures. Between these alternatives the more penetrating rays were found more certain and more economical.

The introduction of the transformer has solved most of our difficulties. It delivers an absolutely unidirectional current and can be built in any size units. It employs a form of current that allows of exact mathematical calculation and design. We are no longer limited

by our generators, but by the capacities of our tubes.

By the addition to our equipment of a 10 kilowatt transformer, several of the best intensifying screens and modern convenient accessories, we are in a position to undertake the work in any field which is now open to the radiologist and we only need greater skill in plate making, and better judgment in their interpretation to keep abreast of the procession in the diagnostic line.

To be sure, some of our devices are home made makeshifts, and a more liberal equipment would mean greater economy in labor and material, but we have the essentials, and a wider field is already open. Gastroenterologic examination with bismuth "per os" and "per anum" offers a wide field. So far the harvest has not been very great, but much good is bound to come from its careful and judicious tillage. Not only may the diagnosis of gastrocarcinoma be made with certainty in the vast majority of cases, but its position and extent may be more accurately gauged than by clinical methods. The differentiation of gastric and duodenal ulcers from other confusing conditions, is becoming more and more certain. Collargol injections of the urinary tract give valuable information in many conditions besides pyelonephritis, for example, tuberculosis, hypernephroma and certain anomalies. The greater contrast at our command makes possible greater detail in the cellular bones, in head work, and in the study of the mastoid and accessory sinuses. Periarticular structure can be fairly well demonstrated. Small differences in the density of the lung tissue are more certainly demonstrable.

But radiography is still largely an art, a matter of skill. We are still unable to measure and control our conditions so that results are infallible. Two recent inventions seem to promise just that. It seems probable that we shall be able to turn on just the shade of light, of just the candle power and for just the length of time that we wish. The first is the Cabot high tension direct current generator, which produces a ray of uniform penetration and therefore furnishes a theoretically ideal current for X-ray work, and the second the "adjustable penetration tube." Both are in the experimental stage, and soon to be put on the market. Already they have contributed a great deal to our knowledge of the physical laws underlying the generation and the properties of X-ray. Both are correct in principle and are bound to find their way into the best practice.

Another field with great promise for the future is that of radiotherapy. We owe to the scientific investigation of radium and the allied bodies a wealth of new knowledge concern-

ing the nature and action of the X-light. During the last two years, an entire revolution has taken place in the technic and in the field of radiotherapy. Instead of the soft ray, for superficial lesions, the Freiberg technic now uses the hardest ray at its disposal for all conditions and a dose fairly accurately controlled by the use of a chemical indicator. It is now possible to gauge the dose to one-eighth of the quantity required to produce an X-ray burn. In practice three-fourths of seven-eighths of an erythema dose is given at a sitting and the dose is not repeated until the effects of the previous dose has worn off, usually from ten to fourteen days. The rays are carefully screened to absorb and remove all the soft rays before they reach the body. Deep lying lesions are approached from numerous directions by the "cross-fire" method. The results have been truly remarkable. Inoperable carcinoma of the uterus has disappeared without recurrence for one and one-half years. What the ultimate result will be the future only can tell. Carcinoma of the breast and stomach improve in many cases. Some are apparently cured. The field of gynecology has been invaded. Metrorrhagia is promptly controlled. Fibroids shrink in volume and cease to give trouble, pelvic adhesions are said to be absorbed. The literature is full of these subjects. The dermatologist is no longer the only specialist to use the X-ray with confidence and he uses it with far greater confidence and certainty of results than ever before.

Unfortunately, the whole issue has been seriously clouded by the coincident use of radium, mesothorium and similar bodies. The useful radiance of mesothorium has approximately eighty times the penetration of the hardest x-ray at present possible, but otherwise differs little in physical or physiologic properties. Hence we can easily understand the craze for hard and still harder rays. Improved apparatus and improved technic are certain to result to the great advantage of otherwise hopeless humanity.

I have tried to show our point of departure in the march of progress, our present position, and the ground we have covered, and if not the ultimate goal, at least the next mile post.

Radiography has been unscientific through ignorance, and has been the victim of exploitation by quacks and charlatans until it has lost caste with the older and more respectable branches of medicine. With more accurate knowledge of the forces handled and a more judicious selection of the tasks assumed, it will ultimately earn and receive a respect it has not hitherto deserved.

Inasmuch as the funds at the disposal of the Department for new equipment, and repairs will depend in no small measure upon the vol-

ume of business transacted by the Department, this feature becomes of some interest. It gives us pleasure to make the following comparisons:

In the calendar year 1911, 609 plates were exposed, with a gross receipt of \$1,064.27. In the year 1912, 830 plates were made, with an income of \$1,369.00. Since July first and including the whole of November, we have seen approximately 475 patients and 831 plates have been made with a net receipt of \$1,220.90. In other words, in the past five months we have equalled the number of plates for the whole of the previous year, and have taken in slightly less money. For the greater part of that period, our equipment was still incompletely installed, and several lines of work we are now ready to undertake were not open to us. As our technic becomes more perfect, and we acquire new accessions to our equipment, our efficiency should further increase and the field widen.

Our motto is "We aim to serve" and to that end, we have introduced several innovations. We are keeping a four part cross index, which is at the disposal of any one connected with the Hospital. We can lay our hands on any desired plate in a very few minutes, or tell where the plate has gone if it has been borrowed. We have undertaken to give an unso- licited opinion on all cases referred to us for examination. We do not expect you to respect these opinions if they do not deserve respect, but we are not afraid to go on record, and ultimately hope to make them of real value.

We still stand in need of a number of important pieces of apparatus. We need more convenient rooms. Perhaps our greatest need is for a dressing-room with toilet. It is next to impossible to do colonic work without it. We need better and more economical apparatus for our photographic work. With the increase in the volume of cases needing treatment which present results seem to promise, we shall need more and specially devised equipment for this purpose alone. And if the work continues to increase as it has for the past few months, we shall certainly need more assistants.

We keenly realize our obligations to you for your co-operation. With your help we feel sure we can once more put the University of Michigan on the radiographic map where it belongs.

REPORT OF TWO CASES OF RICKETS SIMULATING LUES.

D. MURRAY COWIE, M.D.

Clinical Professor of Pediatrics and Internal Medicine,
University of Michigan.

(From the Pediatric Clinic, University Hospital, Ann Arbor, Michigan.)

The two patients I wish to present tonight are sisters, seven and five years old respectively.

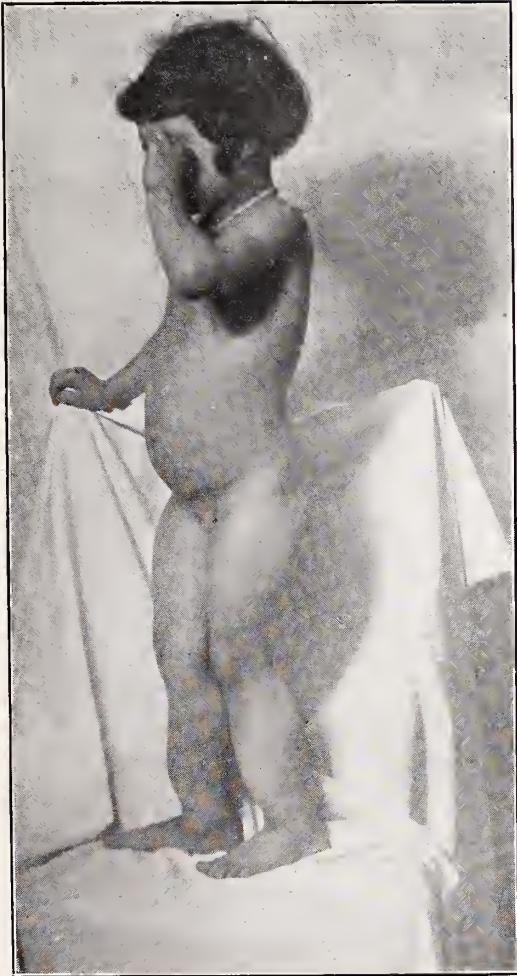
Both have marked deformities of the lower extremities, and the younger marked lumbar scoliosis. The general picture leaves no doubt but that both of these children have well marked cases of rickets. The deformed lower extremities, anterior bowing of the thighs, knocked knees, distortion of the tibiae, rosary, enlarged wrist joints, pot belly and the age at which the deformity began (time of walking) all speak for this disease. There are two points in each case which suggest the possibility of hereditary lues, namely—the marked



appearance of a saber shin and the scaphoid scapulae. The latter we not infrequently find in the Clinic and regard it simply as a stigmata of degeneration. The saber shin on the other hand is so characteristic of lues that we never can pass it by lightly. When we closely examine the older child we observe that in addition to the anterior bowing of the tibiae, there is a twisting of the bone to the inner side above the anterior bowing. This is not characteristic of a typical saber shin as may be seen in a typical case of hereditary lues in the Dermatologic Clinic. There are no other signs of hereditary lues in these children.

From the etiologic side we find some points

of interest. The older child was breast fed and seemed to develop well until she began to walk. Rickets is rare under these conditions. The younger child was fed on Mellin's, Eskay's food and crackers. This suggests a possible etiologic factor, but the mother says that the



milk she used was good milk. None of the early signs of rickets, such as head sweating, etc., were observed by the parents. The mother has had marked interstitial keratitis in both eyes for nineteen years. This developed about one year after marriage. The father gives no history of an initial lesion. There have been no miscarriages. One brother nineteen years

old had knocked knees, but this is not noticeable at the present time. One sister fourteen years old is perfectly developed, but has slightly scaphoid scapulae. Wassermann reactions on father, mother and both children have been entirely negative.

The general deformities and bone changes are not characteristic of lues but the association of the two diseases is strongly suggested. The clinical evidence thus far, even in view of keratitis in the mother, which as I believe has been considered somewhat atypical by Dr. Wile and Dr. Parker, rather points to uncomplicated rickets.

DISCUSSION.

DR. UDO J. WILE: Dr. Cowie kindly asked me to see these two children with him and I must say that my first impression was that both were examples of syphilis. On closer examination, however, and upon more mature study we found that the changes were probably not those of syphilis. The bowing of the tibiae anteriorly suggests syphilis it is true, but there is marked lateral deviation which is not found in syphilitic bones, which are not soft. These are essentially soft bones and mechanical factors have certainly been at work in producing these changes. Not only are the tibiae bowed in this way but the other leg bones are also malformed, particularly those of the thigh. The occurrence of interstitial keratitis in the mother also suggests that the change was syphilitic but the interstitial keratitis is not essentially of the type that one finds in syphilis. Dr. Slocum has expressed the opinion that the change could easily be from any one of a number of other causes. The Wassermann reaction on the father, mother and two children is negative. However, this should be regarded with reservation as speaking against syphilis because we have found occasionally that the mother of syphilitic infants frequently becomes negative during pregnancy. These cases are instructive in that one may have a condition simulating "tibia en lames de sabres" other than occurs in hereditary syphilis.

DR. DAVID M. COWIE, (closing the discussion): I have nothing further to add except to point out again that the majority of symptoms and signs in these cases are in favor of the diagnosis of rickets. The two diseases might easily be associated, and it will be of interest to study them further.

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JANUARY.

Editorials

SEMI-ANNUAL MEETING OF THE COUNCIL.

The semi-annual meeting of the Council of the Michigan State Medical Society will be held in the parlor of the Wayne County Medical Society's building, 33 E. High St., Detroit, on Tuesday, January 20th, 1914, at 10 o'clock in the morning for the transaction of the regular order of business and such other business as may properly come before that body.

W. T. DODGE, Chairman.

F. C. WARNSHUIS, Secretary.

DUES

The dues for 1914 are now due and payable. Please do not neglect this but make it a point to send your check to your county secretary at once. He has enough work to do without being compelled to assume the role of collector and persistently request you to pay your dues during the next three months. When you receive notice that your lodge dues are payable you usually remit a check to cover at once. Why

not do the same thing in this matter of your medical society dues? Your county secretary will appreciate your prompt remittance. Please do so at once.

TREATMENT OF PNEUMONIA.

Some very interesting articles have been recently published relating to the treatment of pneumonia and the subject is still occupying the earnest attention of investigators, the result of which will no doubt give, in the near future, a much clearer understanding of the intricate phenomena of the disease. The investigators have been basing their studies of the disease upon the conception that a specific therapy is not possible without a clear understanding of the changes, chemical and biological, which take place during the course of an attack; and they have therefore directed most of their efforts toward the solution of the mode of operation of the pneumococcus in its attack and of the means of resistance of the host, leaving the therapeutic side of the disease to follow the result of their investigations.

Most of the newer contributions admit the contagiousness of the disease, either by the direct or indirect method, though many believe contagion is comparatively infrequent, much depending upon the verulence of the organism and the resistance of the individual.

Very little advance has been made in the drug treatment of pneumonia in the past decade. Morgenworth, working along chemotherapy lines in pneumonia, has endeavored to solve the problem and has given us, through his animal and chemical experiments, a quinine compound as a supposed specific which has proved to have some untoward affect in man, and though the conclusions reached have not been satisfactory, nevertheless these experiments are pointing a way to a better understanding of the disease. Many drugs have been exploited, some of them by the most eminent clinicians, as a cure for pneumonia, and have each had their day, but ignorance of the mode of action of these drugs must be held responsible for their laudation. Rosenow, Herschfelder and others have demonstrated that ferments play an important role in the protection against the pneumococcus, and in curing an attack once started. With these methods of attacking the problem it is not unlikely that we are on the threshold of a specific therapy in drug or serum.

Pneumonia in childhood is liable to so many severe and fatal complications, it would appear that with our present knowledge of the disease the time had come when more attention should be paid to the prevention of it. It is not too much to say that one of the most important problems before the medical profession at pres-

ent is the reduction of the death rate from pneumonia, especially among children, and the only hopeful outlook for any considerable reduction in the mortality is through the prevention of the disease. Since the pneumococcus is for the present beyond our reach, the predisposing should claim our attention because they are measurably under our control. Pneumonia is favored by lack of sunlight, it occurs among those who are much exposed to dust, and those who have to breath the emanations from the lungs of other people. Thus the control of pneumonia will be more hopeful in the future through the solving of the housing problem, less crowding of living and sleeping apartments, improved public and private hygienic conditions, and more suburban life among the poor; thus preventing the development of the disease by lessening the predisposition.

A. D. HOLMES.

THE MODERN PROCTOLOGIST AND HIS SPECIALTY.

The time was not so very long ago when the proctologist was known principally, to the profession and laity alike, as one who treated diseases of the rectum and anus only. He was supposed to limit his studies, his training and his knowledge to the terminal five or six inches of the large bowel, and to practice his profession below the "dead line"—the pelvic peritoneum. He was a skilled specialist, peradventure, in the treatment of "piles" and "fistulae", but in the eyes of the medical world in general, his activities stopped and did not extend beyond these two conditions.

As a matter of fact the special branch of medical science known as proctology is more specifically the science of entero-proctology, covering as it does the study of the entire intestinal tract. The field of the proctologist is no more limited to the rectum and anus alone than is that of the laryngologist limited alone to the larynx, or that of the urologist limited to the urethra. A specialist who is competent to treat diseases of a part of the intestinal tract must be competent to treat pathological conditions of the entire intestinal tract. How ridiculous a specialist would seem if he announced that: "Below the recti-sigmoidal juncture I am specially skilled; above it I am absolutely incompetent!"

To become a well trained, thoroughly grounded proctologist, one must first serve his apprenticeship in general practice; then he must have had experience in general surgery and particularly in surgery of the abdomen and pelvis; he must also be familiar with the normal and abnormal physiology of the organs of digestion, assimilation and elimination.

The problems presented by pathological in-

terference with normal intestinal elimination, whether mechanical or functional, involve the study, diagnosis and treatment of many factors which either accelerate or impede intestinal peristalsis. The so-called chronic "diarrhoea" and "constipation" are successfully treated by the proctologist who has given careful consideration to all the factors in the whole intestinal tract. Ulcerative conditions, infections, neoplasms, adhesions, misplacements, obstruction of the bowels and its related structures, can only be successfully treated by him who is competent to perform every intra-abdominal operation that may be indicated for the relief of the existing condition.

The proctologist who has developed himself to that high ideal of his professional specialty—a skilled intestinal surgeon—is one who can give to his patient requiring an intestinal anastomosis, a resection, extirpation of a colonic or rectal carcinoma, the excision of a rectal fistula, the benefit of a skill and technic obtainable only by constant contact and professional labor with those suffering from the diseases requiring operative relief of the kind about mentioned.

LOUIS J. HIRSCHMAN.

PRESENT STATUS OF TREATMENT OF SCOLIOSIS.

Since the days of Hippocrates, the treatment of crooked backs has been an ever present and very prominent problem with the medical profession. All through history the hunchback has been a great sufferer and the target for thoughtless ridicule. Practically without exception this great class of cripples have been the victims of tuberculosis of the spine, or of so-called idiopathic lateral curvature (scoliosis). For many years, when taken at its inception, tuberculosis of the spine has been fairly amenable to treatment. On the other hand, scoliosis has been, and still is, most difficult to care for. Every conceivable device, from stretching by means of two horses, one attached to the head and the other to the feet, to the most complicated ingenious machinery, has been employed. The total net result has been an occasional slight improvement in deformity, and frequently the prevention of its further development.

The principal mistakes in treatment have been due to lack of knowledge of the etiology, morbid anatomy and mechanical changes of this disease. Even today the etiology is unknown except in those cases where loss of muscle balance, due to anterior poliomyelitis, has led to the deformity. Various theories have strong advocates: Faulty posture leading to permanent anatomical changes; bone disease

leading to unequal development of the two sides; bone softening, and many others. The morbid anatomy and mechanical changes have of late years been pretty thoroughly worked out through the researches of Lovett, Bradford, Freiberg and others; we now have a clear notion of the conditions which we are attempting to treat.

Scoliosis depends not on a simple bending of the spine but on a bending in both the transverse and antero-posterior planes, to which is added a rotation of the spine on its axis. Since the realization of these facts, the efforts of orthopedic surgeons have been devoted primarily to the reduction of the rotation of the spine; for it has been found experimentally that a spine cannot bend laterally without rotating, and, conversely, that the rotation cannot be overcome without overcoming the bending. In the past practically all attempts to overcome rotation have been made with the spine in extension; that is, with all the articulating facets firmly locked together. As a result comparatively little has been accomplished and the scoliotic patient has rarely been improved. Within the last three years several men, notably Abbot of Portland, Maine, and Forbes of Montreal, have conceived the idea of making forcible correction with the spine in flexion. This has opened the articulations and made the spine as a whole much more flexible. Each man has worked along different lines in the application of this principle, and each has developed a more or less complicated but extremely useful method of untwisting the deformity.

However, none of the methods so far evolved have produced perfect results. Many cases of bad deformity with actual bone change still defy our best efforts to actually correct them. Nevertheless it may fairly be said that through the application of this principle of flexion of the spine during forcible correction of the deformity, we have added to our armamentarium an extremely valuable weapon with which to combat the disease, and many cases can be so much improved, if not absolutely cured, that they are enabled to face the world without apparent deformity and with a greatly increased chance to become useful members of society.

F. C. KIDNER.

THE ENFORCEMENT OF OUR MEDICAL LAW.

The new medical practice act that was passed by the last legislature and now in force is a measure that will enable the authorities to rid the state of all illegal practitioners, charlatans, representatives of various cults and fakers who are carrying on their nefarious practices in violation of this law. It is the first time that we have had a law that defines the practice of med-

icine and with the existence of a legal definition of what is meant by the practice of medicine the determining of the guilt of an accused person is more readily accomplished.

The law is, however, valueless unless its provisions are enforced and its violators prosecuted. We regret exceedingly that there is no provision for a prosecuting officer whose entire time might be devoted to the enforcing of this act throughout our state. In this connection we are reminded of the following extract from the address of Hon. M. D. Campbell, delivered at our annual meeting in Flint:

"Never since the call of Adam 'Where art thou' has there been a time when social, health and sumptuary laws did not require a policeman in the garden. We may pass resolutions and legislatures may enact laws until the crack of doom, and unless officers are appointed to enforce them, they will sleep without waking."

Notwithstanding, however, this law must be enforced—it is a duty we owe to the public and to ourselves. In the absence of a prosecuting officer designated to that task we believe that it is incumbent upon the organized profession to take up the task.

How shall it be done? By the appointment of a committee in every County Medical Society whose duty it shall be to ascertain who are the violators in their county, place this information before the county prosecutor and swear to the warrant not as individuals but as representatives of the county society. Such committees by active effort will bring about the rigid enforcement of the provisions of this law and thus rid the state of its violators.

Individual work, commendable as it may be, will not accomplish as much as organized effort and action. Individually we are prone to shirk responsibility and say—"Oh, he isn't hurting anyone." Again, if a citizen approaches you and asks you why you are after "Dr.(?) Faker" you might be persuaded by him to withdraw your complaint. By conducting the enforcement of the law by the suggested plan you can reply to the interested citizen that the complaint is made by the county society and the responsibility does not rest upon your shoulders alone. Again, demands from the organized society of the county composed of the representative physicians in the county will cause a prosecuting attorney to move to quicker action than if he were approached by one or two individuals. Other reasons might be advanced as to why it is advisable that the work should be undertaken by the county society.

We suggest that at your next meeting you take such steps as are necessary to secure the appointment of such a committee and having secured their appointment charge them to become immediately active. Two or three societies have already done so and it is urged that

the movement become widespread throughout the state. The State Board of Registration we feel sure will be pleased to render you all the co-operation in their power and supply you with sought for information.

DOES THE WORKMEN'S COMPENSATION LAW CHANGE THE OLD TIME RELATIONS BETWEEN THE PHYSICIAN AND HIS PATIENT?

Herein is some food for thought. Since the days of Hippocrates the physician has held as a sacred secret all knowledge of his patient's physical conditions, and other confidences reposed when such knowledge was imparted by the patient to the physician as such. The patient's most carefully guarded closet skeletons are often laid bare to the physician, either in confidence reposed by the patient in consultation or discovered by the physician during a physical examination or a course of treatment given the patient. The whole duty of the physician was to his patient in whose employ the physician might be said to be. The Workmen's Compensation Act practically places the physician in the employ of the industrial corporation or firm who is to bear the expense of the patient's treatment. That the physician or surgeon shall ever and always do all in his power to effect a speedy cure remains a paramount duty as it has always been.

Many instances may arise wherein the physician's path of duty may not be so clearly defined regarding the absolute fealty to his patient, and to his employer, when these are not one and the same. An actual instance, or two, of this kind will bring out this point more clearly:

Case 1. The patient was a young man working upon the steel construction of a new building. When driving home a large rivet, by means of a steel hammer, a piece of metal struck him in the right eye. The firm which employed him sent him to me for treatment. The injury caused irritation of the right eye to such an extent that it was necessary to put the eye under atropin and cover it with an eye patch dressing. Following my rule of always taking and recording the patient's vision in each eye before any treatment is given I found that vision in the right or injured eye was 20/30. Vision in the left or uninjured eye 20/70. He told me in confidence that he had never been able to see well with his left eye, but his employer did not know it. As far as the injury to the right eye was concerned he could have gone back to his work within a few hours after the injury, by simply keeping the injured eye covered by the protective patch

dressing and using the left or uninjured eye for his work.

In this instance, however, the man had to stop work for several days until the injured eye had entirely recovered; as the vision in the uninjured eye was so poor that I did not dare permit him to go back to his work. The vision with the uninjured eye was so poor that he would have fallen in attempting to climb about the steel construction work, and would have brought further disaster upon himself and upon his employer.

Now here was several days' time which was lost to his employer and for which his employer paid compensation, due not entirely to the injury, but due to the fact that this man only had one good eye when he was employed.

What is the physician's duty in such an instance? The employer wants to know whether or not anything besides the injury contributed to the disability. The patient does not want his employer to know that he has only one good eye. Is it my duty to protect my employer or my patient?

Case 2. A factory machinist has a slight injury to one eye. The company employing him sent him to me for treatment. The eye stubbornly refused to get well under the usual treatment, and upon inquiry into the patient's history he admitted that he had syphilis some time before. Under appropriate internal treatment added to the local treatment recovery was uneventful but retarded.

Now, unquestionably, the syphilis delayed recovery in this instance, and was the cause of considerable financial loss to this man's employer, both in extended loss of time, for which the employer had to pay compensation, and also in larger physician's fees for care of the case.

This patient did not want his employer to know that he had syphilis. But the employer, who paid me for the medical care of the patient, had a right to know why the bill was so high and disability of so long duration, following so slight an injury. In justice to myself I should be permitted to explain to the employer who paid me for taking care of this case, why it took me so long to cure an eye so slightly injured.

In this case my duty to my patient was to keep his secret. My duty to my employer was to inform him as to what he paid out his money for; and, lastly, my duty to myself was to explain to my employer why my cure was retarded and high priced.

These are only two instances which illustrate some of the points involved in this question. I could cite more cases of this same nature and also some of different nature which bring out even more and different points involved.

In my opinion this condition of affairs under the present Workmen's Compensation Law will

eventually cause every employer to demand a complete physical examination, and a physician's certificate covering a complete physical examination of every applicant for work before he employs him. This will especially be true of all the large factories where great numbers of men are employed, and these industrial corporations will employ their own physicians to make these physical examinations and keep accurate records of them.

This will in turn work a hardship upon the man who is not physically perfect. The man with the poor vision, poor hearing, or other physical defects will find it more and more difficult to obtain employment; just as he now finds it difficult to obtain life insurance. The further result will be that the commonwealth will have more and more demands for help from the common people.

On the other hand these conditions may do more than anything else could possibly do to awaken the people to the necessity of the right way of living and the conservation of good health.

V. A. CHAPMAN.

[The above article was submitted to Dunham and Dunham, Attorneys, Grand Rapids, and the following legal opinion is submitted by H. Monroe Dunham of the above law firm.]

MEMORANDUM.

The confidential relationship existing between physician and patient was established by the Statutes of Michigan, as far back as 1857, which was subsequently amended by the laws of 1871, and which Act is now in force, and provides as follows:

"No person duly authorized to practice physic or surgery shall be allowed to disclose any information which he may have acquired in attending any patient in his professional character and which information was necessary to enable him to prescribe for such patient as a physician or to do any act for him as a surgeon."

At the common law, information given by a physician or surgeon while in attendance upon his patient was not privileged. The purpose of this statute was to throw around such disclosures, as the patient is bound to make for the information of his attending physician, the cloak of secrecy and the prime object of the Act was to invite confidence in respect to ailments of a secret nature and the spirit of the Act would not include a case where the infirmity was apparent to every one on inspection. In practice, however, the statute has not been so limited in construction for the reason that the word of the Act was broad enough to include any information necessary to enable the physician to prescribe or the surgeon to act.

There has been no amendment to this statute in Michigan up to the present time, but Act

No. 10 of the Public Acts of 1912, Extra Session, which Act is known as the Michigan Compensation Act, changes to a certain extent under certain conditions, the relationship of physician and patient.

Under the Compensation Act as provided by Section 4, of Part 2 of said Act the employer shall furnish or cause to be furnished reasonable medical and hospital service and medicines when they are needed during the first three weeks after the injury.

By this enactment, the statute imposes a duty upon the employer, requiring him to provide reasonable medical services and medicines, but which obligation does in no way change the confidential relationship heretofore existing between the physician and his patient. By reason of this contractual relationship, existing between the employer and the physician, which relationship is established by statutes, does not abolish the privileged and confidential relations between physician and patient and in no way is the physician morally or otherwise bound to inform the employer of the condition of the patient, which information the physician has obtained in his professional capacity, and which information is at the present time as much privileged and of a confidential nature as it was prior to the above mentioned enactment.

Under the terms of the same Act, Section 19, part 2, the Act provides as follows:

"That after an employe has given notice of an injury, as provided by this act and from time to time thereafter, during the continuance of his disability he shall, if so requested by the employer, or the insurance company, carrying such risk or the commissioner of insurance, as the case may be, submit himself to an examination by a physician or surgeon authorized to practice medicine under the laws of the state, furnished and paid for by the employer, or the insurance company, carrying such risk or the Commissioner of Insurance, as the case may be. The employe shall have the right to have a physician provided and paid for by himself present at the examination. If he refuses to submit himself for the examination or in any way obstructs the same, his right to compensation shall be suspended and his compensation during the period of suspension may be forfeited. Any physician who shall make or be present at any such examination may be required to testify under oath as to the results thereof."

By this Section the Legislature seemed to recognize the confidential relationship existing between patient and physician and to understand that the provisions of Section 4, of Part 2, did in no way alter the confidential relationship of patient and physician.

So by this Section 19, or part 2, the Legislature provided a way by which the employer, or the insurance commissioner could obtain information that is privileged and which they were unable to obtain legally, by any other process.

This section provides that the employer or

the insurance company, carrying such risk or the commissioner of insurance, as the case may be, may request the injured employe to submit himself to an examination by a physician or a surgeon furnished and paid for by the employer, insurance company or commissioner of insurance under a penalty of a suspension of his compensation under this Act, and that the information obtained at this examination, so demanded, as provided by this Act, may be imparted to them, the employer, insurance company or commissioner of insurance as this Act also provides, that any physician present at such examination may be required to testify under oath as to the results of such examination.

By this statute, under certain conditions and provisions, the confidential relationship of patient and physician are changed and the physician would be bound to testify to things learned by him at such examination, but not to things that he knew or learned concerning the patient prior to such examination, providing these things were not discovered during the examination.

This Act changes to a considerable extent the law of the state of Michigan as laid down in the case recently tried in the Circuit Court for Kent County, which case was that of *Thomas vs. The Township of Byron*, in which case the Supreme Court said in substance: That any physician or surgeon, who had attended the deceased in her life time, in his professional capacity and then after her decease had been present at an autopsy held on her body, that the physician could not testify as to things learned by him at the autopsy or post-mortem examination of the deceased, for they did not believe that a physician could separate the information obtained by him from the patient in her life time from that which was learned by them at the post-mortem.

By Section 19, of Part 2, the statute seems to provide that the attending physician could be required to testify under oath as to things learned at the examination of the patient, also though such information might have been gained in his professional capacity in attending the patient, prior to the examination.

In summing up the law, as it now appears in regard to the legal status of physician and patient, we are of the opinion that the confidential relationship existing between physician and patient is not altered or changed in any way by reason of the Workmen's Compensation Act, so-called, until the employer or insurance company or the commissioner of insurance demand an examination of the patient and such examination is held by a physician employed by one of the parties, demanding such examination, and up to that time any communication or information learned by a physician in prescribing

for his patient would be privileged and it would be in violation of the law, for a physician, although employed by the employer to disclose to the employer anything learned by him in prescribing for the patient up to the time that the examination is demanded and had, as provided in Section 19, Part 2 of the Workmen's Compensation Act.

Taking up the two questions submitted:

The first question, in which it states that a patient received an injury to his eye while working for an employer who had elected to be bound by the terms of the Compensation Act, and upon receiving the injury, the employe was sent to a physician employed by the employer for treatment. That the vision in the injured eye was 20/30ths and in the uninjured eye 20/70ths as disclosed by the examination of the patient.

The physician learns in confidence that the patient has not had the full use of his uninjured eye for some time, all of which was unknown to the employer. That after dressing injured eye it would have been possible for the patient to have returned to work, providing the uninjured eye had a normal vision and that by reason of the uninjured eye and the poor vision of the same, the patient was unable to work for several days, and that by reason of the condition of the uninjured eye, the employer would be obliged to pay compensation, which was not due entirely to the injury but due to the fact that the patient had but one good eye at the time of his employment.

The question asked is:

1. What is a physician's duty in such an instance, upon the request of the employer, as to whether or not anything else contributed to the disability, and,

2. Is it the duty of the physician to protect the employer or the patient?

The facts in this case as the question is presented are not sufficient, as the case stands, for the employer to pay any compensation at all, as it will be necessary for the employee to be disabled on account of his injury for one full week before he is entitled to any compensation whatever, and until he has been disabled for eight weeks, he is not entitled to any compensation for the first week.

Now, then, the first question in our opinion: It would be a breach of duty for the physician to impart to the employer any information given to the physician in confidence, to be used by him in prescribing and treating the injury of the patient. This would be the rule in the hypothetical case, stated, up to the time that the employer demanded an examination to be made of the patient as provided in Section 19, Part 2 of said Act.

In answer to the second question: The physician is legally bound to retain all information

learned by him in confidence in prescribing for his patient and it would be a breach of duty for him to impart that information to the employer for the employer's protection, as the statute provides protection for the employer, and until he exercises that right, there is no duty on the part of the physician to inform the employer.

The second hypothetical case is one in which an employee was injured in one eye, which injury stubbornly refused to yield to treatment and upon inquiry the physician learned from the patient, that the patient had had syphilis for some time. That this condition delayed recovery and was the cause of considerable financial loss to the employer on account of the disability of the employee and of the payment of compensation on the part of the employer.

The first question is: Was it the duty of the physician to explain to the employer why the disability was of such duration, in view of the fact that the employer was providing for the medical care of the patient, and

Second: Should not the physician be allowed to explain to the employer, for the physician's protection, why the cure was of such long duration?

In our opinion in answer to the first question: It was not the physician's duty to inform the employer of the cause of the delay in the cure and it would have been a breach of duty on the part of the physician to have informed the employer of the condition, found in the patient, which condition was learned by physician in confidence and in prescribing treatment for the patient. That the fact that the employer paid the physician for the medical treatment would not give to the employer any other right than he would have, if the patient himself was providing for his own medical attendance for the reason that under the statute the law obligates the employer to provide three weeks' medical attendance upon an injured patient and no duty whatever arises from that statute between the employer and the physician and as had been stated before, the employer must seek his rights in the Act by demanding an examination before he is entitled to learn of the condition of the patient and that until he does so, the physician owes no duty whatever to the employer.

In answer to the second question: From a legal standpoint, the physician would be acting outside of his professional duty, if for his own protection, he violated the confidence reposed in him by the patient and which confidence is protected by the statutes. It would be entirely unethical and unprofessional for a physician to give any information to the employer in violation of the law, for the purpose of protecting himself.

The relationship between employer and

employee is that of contract. The employer contracts with the employee to do certain work and that contract does not entitle the employer to know or learn of the physical disabilities of any man employed by him, whether the physical defects are apparent or not.

We have no knowledge or record of the number of cases, such as referred to in the doctor's communication, but it is our opinion that the percentage of cases in which physical defects of employees, rather than the injury sustained by them, causing disability would be very small, and that on account of this situation, it seems to us that the condition which the doctor mentions in respect to the physical examination and the keeping of records of all men employed by industrial corporations will never be practised.

H. M. DUNHAM.

Editorial Comments

"Resolved, That any member of the Michigan State Medical Society found guilty of secret fee-splitting or of giving or receiving commissions shall cease to be a member of the Michigan State Medical Society."—*Action taken by the House of Delegates Sept. 5th, 1913.*

"The Board of Registration in Medicine may refuse to issue or continue a certificate of registration or license * * * to any person guilty of the division of fees in a consultation or a reference of a patient to a specialist, when no actual professional service is rendered by the physician referring the case, without the knowledge of the patient or the person concerned in the payment thereof."—*Michigan Practice Act, Sec. 3, sub-sec. 6.*

"Those found guilty of the division of fees shall forfeit their membership."—*House of Delegates American Medical Association.*

"The College will not knowingly select for, or retain within its ranks anyone who practices fee-splitting directly or by subterfuge."—*American College of Surgeons.*

The foregoing resolutions and extract of the Michigan Law regarding the evil of fee-splitting that exists to a greater or less degree throughout the entire country and by reason of its existence exercises a menacing influence upon the standing of the profession as a whole, are indicative of the stand that is taken by our state and national organizations. Mere resolutions, while necessary, will not wipe out this evil. Something more than resolutions are required—they must be enforced without favoritism or prejudice. In addition, surgeons and physicians must come out and openly declare their determination and stand to not be a party

to this evil practice and having done so they must actively assist in exposing those who continue the practice of fee-splitting.

Our special committee on the Evils of Fee-splitting recommended that our members be given an opportunity to openly pledge themselves to neither give nor receive secret commissions for their professional services. To this end *THE JOURNAL* is open for the public recording of such pledges from our members. If you are desirous of thus joining the ranks or those who oppose this practice kindly notify the editor to that effect in order that we may have an official Roll of Honor for future reference and guidance.

In spite of the criticisms that have been offered it is only fair to those who have acted for the American College of Surgeons to believe that they have used their best judgment in selecting those who have been granted fellowship degrees. "There have been criticisms—there will always be criticism. There are two special points of attack—first: because the College is to be a 'Guild'—perhaps it is, in a sense, but always an open guild, open to all who can show fitness, wherever they come from; second: because it excludes men who, though not specialists, are doing good work in surgery; there are such men, but the College does nothing to such men, the failure to include them means that they are not, with few exceptions, the best men fitted to do the work in raising the standards that this college has set for its task."

"As for the practitioner of medicine, we believe that the action will help him to gain once more the position which is not always granted him today, that of the trusted adviser of the family, and it is believed that he will be the gainer if his patients learn not to demand work from him outside his chosen field."

It's easy enough to criticise, it's also easy to commend; we are inclined to commend in this instance for we believe that the ends strived for are commendable and that any organization that has for its objects the elevation of a branch of our profession as has the College of Surgeons will succeed in attaining their ideals—the elevation of the standing of American surgery and surgeons.

The supply of original articles derived from the papers that are read at our annual meeting is not sufficient for the needs of *THE JOURNAL* for an entire year. Consequently we are always pleased to receive original articles and case reports from our members. Will you not bear this in mind and give *THE JOURNAL* first preference when casting about for an organ of publication for your writings?

"God will not ask what college you graduated from, what honorary degrees you have, what scientific discoveries you have made, what medals you have won. He will ask if you have tried to make your work, your profession, your world better. He will ask if you have worked with your brother or against him."

—A. M. A. Bulletin.

The last issue as well as this one contains several new advertisements. Have you read them? Have you patronized them? They are not space fillers nor are they for ornamentation—they are a source of revenue that enables the Publication Committee to send you a better and a larger *JOURNAL*. The advertiser expects to receive a fair return upon the money that he is investing with *you* and *your* publication. In order that *your JOURNAL* may continue to receive this revenue it is absolutely essential that you consign your orders to those business men and firms that patronize *you*. They are honest; they are reliable; they will treat you fair and they merit and are entitled to your patronage. Give them your next order and tell them why you are doing so. You owe *THE JOURNAL* this co-operation.

Under Society News there will be found the annual reports of the Secretary and committees of the Kalamazoo Academy of Medicine. We urge that every reader take the time to read these reports. They reveal what a live, active society may do for its members. It is possible for such activity to exist in every county society. To bring it about requires work on the part of the members—co-operation. Your society can report as successful and interesting meetings as does the Kalamazoo Society if you and your fellow members will but give a little of your time to the effort. We congratulate the officers and members of the Kalamazoo Society upon the completion of such a successful society year.

Your *JOURNAL* for the past year will be bound for you at an expense of \$2 if you will express the twelve numbers to the Editor together with a check for \$2. They will be returned to you at the expiration of about three weeks—the time required for binding. This price will remain in force until February 1st.

Deaths

JOHN H. CROSBY, M. D.

Dr. John H. Crosby of Plainwell, Michigan, died at Bronson Hospital in Kalamazoo, December 17, 1913. The cause of death was Mesenteric Thrombosis in that part of the mes-

entery supplying the upper part of the jejunum. He is survived by his wife and two children, Rachael three years old, and John H. Jr., who is one year old.

Dr. Crosby was born in New Buffalo, Michigan, June 17, 1877. In his early years his family moved to Three Oaks, Michigan, where he graduated from the common and High Schools. He then went to the University of Michigan, where he received the M.A. degree in 1902 and the M.D. degree in 1904. After graduating from medical school he located in Otsego, Michigan, as assistant to Dr. A. L. Van Horn, with whom he practiced until 1910 when he spent several months doing post grad-

death. He was president of the Kalamazoo Academy in 1911.

Dr. Crosby was a man large enough to become actively interested in other things than his professional life. He was at one time president of the Village of Otsego. He was an active member of the Presbyterian church and Masonic Lodges. He was a very aggressive member of the Plainwell School Board and only shortly before his death he had done much active work to put the Public Schools of Plainwell on a higher grade.

In 1905 he married Miss Fanny Cross of Otsego and three children were born to them. Two of these survive.

Dr. Crosby enjoyed an enviable popularity among the students while at the University, among the physicians not only of the Kalamazoo Academy of Medicine, but of the whole state as well, and among his clientage. He was a man of high professional attainments and one who carried out in his every day practice what he knew.

C. E. BOYS.

The following expression of sentiment was offered at a special meeting by the Kalamazoo Academy of Medicine with reference to the life and death of Dr. Crosby and unanimously adopted by the Society.

"Mr. President and Members of the Kalamazoo Academy of Medicine:

"I have been asked by the Academy to draw up resolutions expressing to the family of Dr. John Crosby, our sympathy in their recent bereavement. But if we who were his friends feel so great a personal loss, how can we hope to convey any comfort to the family who were so intimately and completely a part of his life? Our only way is to tell them how much we honored and loved him.

"We showed our respect for his professional ability and integrity by electing him President of the Kalamazoo Academy of Medicine, the highest honor we could give him. How much we loved him we had no definite way of showing, except by wanting him with us. None of our meetings seemed complete without his ready wit and quick, happy laugh. Even the severe pain of his last illness and the nearness of death could not overcome his brave spirit or his love of humor. He greeted us with his joke and smile to the last. One of his attending physicians said to me: 'When my time comes, I pray that I may meet death with the same fortitude and sweet disposition that Dr. Crosby has shown throughout his last sickness.'

"So to the sorrowing family we can only say: 'We have the same feeling of loss, but also we have the memory of a physician who was an honor to his profession, the memory of a man who did his work well—so well that he feared to face no man; so well that even death, with



JOHN H. CROSBY, M.D.

uate work in pediatrics in Vienna and Berlin. On his return from Europe he bought out the practice of Dr. B. A. Shepard in Plainwell and has been active in that place until the time of his death.

Once located in Otsego he soon became a member of his local medical society—the Kalamazoo Academy of Medicine, which society he has served faithfully in various capacities up to within a few days of his death. His last act for the Academy was to serve on the nominating committee for 1914 officers for the society, and was even on that day suffering with the trouble which a few days later caused his

whom he had fought so many battles for others, had no terrors for him.'"

R. E. BALCH,
Chairman Social Committee.

State News Notes

Dr. Chatel has been appointed as county physician for Keweenaw county.

Dr. Rudolph J. E. Oden, Cadillac, has been appointed as member of the Cadillac Public Library Board.

Dr. Don Griswold of Detroit is acting as city bacteriologist for the Detroit Board of Health.

Dr. L. R. Kratze formerly of Escanaba is now located in Engadine.

Dr. B. H. McMullen of Cadillac has returned home after a two weeks' visit at Johns Hopkins Hospital during the fore part of December.

The marriage of Dr. F. V. Burnham of Detroit to Miss Nellie M. Frey of Boston is announced by the Detroit daily papers.

On December first Dr. A. E. French succeeded Dr. E. Quandt as one of the county physicians of Wayne County.

Dr. J. A. McPherson of Grand Rapids has returned home from Rochester, Minn., where he submitted to a cholecystotomy.

Dr. Ralph Apted of Grand Rapids returned home Nov. 28, after a long period of service with the state militia in the Upper Peninsula. He resumed his duties as city physician on the first of December.

Dr. Louie Ethelyn Vandervoort of the Battle Creek Sanitarium staff became the bride of Henry Martin Stegman of the New York Tribune staff on Nov. 26th.

Dr. Charles W. Eliot, ex-president of the Harvard University will attend the Health Conservation Congress that will be held in Battle Creek during January.

It is stated that Dr. Harvey W. Wiley, formerly chief of the bureau of chemistry in Washington, has been selected by Mayor-elect Mitchel of New York as health commissioner of that city.

Dr. V. C. Vaughan addressed the union church meeting in Kalamazoo on Tuberculosis Sunday. His subject was "The Influence of Disease on Civilization."

Dr. Reuben Peterson delivered an address on "The Rights of the Unborn Child" at a public meeting held in St. Joseph under the auspices of the Berrien County Medical Society on November 21.

Dr. C. E. Stewart of the Battle Creek Sanitarium staff has returned home after a two months' European trip. The doctor read a paper at the International Congress of Medicine in London.

Dr. M. E. Roberts of Grand Rapids has returned home from Rochester, Minn., where he submitted to an operation for the cure of a chronic gastric ulcer.

Dr. J. T. Cooper, county physician, has asked the board of supervisors of Muskegon county for an appropriation of \$15,000.00 for the erection of a tuberculosis hospital.

Dr. A. M. Campbell, Burton R. Corbus and R. R. Smith of Grand Rapids, attended the annual meeting of the Kalamazoo Academy of Medicine on Dec. 9th.

A verdict of no cause for action was returned in the circuit court of Mecosta county in the case brought against Dr. W. J. Conover of Evart for alleged malpractice in treating a fracture of the leg.

Dr. W. H. Sawyer of Hillsdale delivered a lecture on Public Health at a mass meeting held in the Fountain Street Baptist Church in Grand Rapids on Sunday evening, Dec. 21.

Dr. E. H. Hayward has resigned as bacteriologist for the Detroit Board of Health and has opened a fully equipped laboratory in the Brietmeyer Bldg. for clinical, bacteriological and chemical examinations.

According to Attorney-General Fellows adenoids can be classed as a malady and be treated under the direction of the judge of probate in cases where the parents of the children are too poor to furnish medical attention.

The Detroit papers intimate that the United States Bureau of Health is contemplating an investigation and study of the diphtheria epidemic that is prevailing in that city. The recommendation has been made by Surgeon-General Rupert Blue.

The Northern Tri-State Medical Association of physicians in Michigan, Indiana and Ohio will hold its semi-annual meeting in Kalamazoo on Jan. 13th. THE JOURNAL has not been supplied with the data and is thus unable to publish the program that is to govern this session.

Dr. Ferris Smith, for a number of years assistant to Dr. Canfield at Ann Arbor, has returned from a year's postgraduate work in Europe and opened an office in the Metz Building, Grand Rapids. The doctor will limit his practice to Ear, Nose and Throat diseases.

It is intimated that the appointment of a successor to R. L. Dixon, secretary of the State Board of Health will be made by the Governor before the first of the year. The selection will undoubtedly be either Dr. John L. Burkart of Big Rapids or Dr. Don M. Griswold of Detroit.

A sixty days' tour of the well known European surgical clinics is being arranged under the auspices of the Georgia Surgeons' Club, to close with the meeting of the Congress of Surgeons of North America in London the latter part of July, 1914. Representative surgeons are invited, and may secure details of the trip from the Secretary, Dr. R. M. Harbin, Rome, Ga.

The time requisite for the setting up of copy and the revision of proof of the Transactions of the Clinical Society has been so limited and the issue of THE JOURNAL having been delayed on two occasions on that account, we have decided to omit the January Transactions in our February JOURNAL. The February JOURNAL will be a Special Number and

will contain all the papers that were read in the Section on Ophthalmology and Oto-laryngology at the Flint meeting. The Transactions of the Clinical Society will appear in the March and subsequent issues without interruption.

County Society News

BAY COUNTY.

The Annual Meeting of the Bay County Medical Society was held at the Bay City Club on Tuesday, Dec. 9th, at 8 P.M.

At 7 o'clock the Society was entertained at dinner by the retiring President, Dr. G. W. Moore of Munger, thirty-five members being present.

After dinner the Society was called to order by the President, and the reports of the Program Committee, Secretary and Treasurer were listened to. The annual address of the President then followed, on "The Service of the Physician to the Public." This address we hope will be published in full in THE JOURNAL.

The election of the Board of Directors then followed, and the following were chosen: Drs. C. A. Stewart, J. M. Jones, G. W. Trumble, T. A. Baird, H. B. Morse and A. W. Herrick. The Board of Directors retired and elected the following officers:

President—Dr. C. A. Stewart, Bay City.

Vice-Pres.—Dr. J. M. Jones, Bay City.

Sec'y-Treas.—Dr. G. W. Trumbull, Bay City.

Delegate to State Society—Dr. G. W. Moore.

Alternate to State Society—Dr. W. G. Kelley.

Dr. T. E. Ruggles of Bay City was elected a member of the Medico-Legal Committee.

The Society voted to request the Health Officer to make a monthly report before the Society of health conditions in the city.

The Society then adjourned.

On December 2nd the Bay County Medical Society entertained the ladies. At 7 P.M. a banquet was served at the Bay City Club, with fifty-seven members and guests present. After the banquet a program of music and speaking occurred.

Rev. T. E. Webb of the First Baptist Church, Bay City, spoke on "The City of Our Heart's Desire." Judge C. L. Collins of Bay City, gave some interesting comparisons between the professions of law and medicine. Dr. C. H. Baker gave a response in which he emphasized the importance of team work in the medical profession. Dr. C. A. Stewart spoke a few words in appreciation of the help of the ladies during the last year.

Following the program a social hour was enjoyed, and everyone voted that our second "Ladies' Night" of the year was a success.

H. N. BRADLEY, Secretary.

CHIPPEWA COUNTY.

The annual election of the Chippewa County Medical Society was held at the Park Hotel on Dec. 2nd, 1913.

The minutes of the last meeting were read, with the report of the Secretary-Treasurer, and approved. The following officers were elected unanimously for the ensuing year:

President—James Gostanian, Sault Ste. Marie.

Vice-Pres.—R. E. Stocker, Brimley.

Sec'y.-Treas.—Clayton Willison, Sault Ste. Marie.

Delegate—T. Greely Fox, Rickford.

Alternate—H. E. Perry, Newberry.

JAMES COSTANIAN, Secretary.

GENESEE COUNTY.

The regular monthly meeting of the Genesee County Medical Society was held on November 25th, 1913.

A paper entitled "The Complement Fixation Test and its Clinical Value in Gonorrhea" was read by Dr. William E. Keane of Detroit. The discussion was opened by Dr. Cook of Flint.

Dr. E. D. Rice of Flint gave a very interesting talk on a case of "Foreign Body in the Bronchus." Dr. Wm. Clift demonstrated the X-ray plates which were taken of the case, and the discussion was opened by Dr. Bird.

A rising vote of thanks was given Dr. Keane for the paper which he gave the Society.

We are at present considering the publication of a monthly bulletin, which will contain the reports of the meetings, an outline of the papers which are read, and any action which may be taken by the Society.

ROBERT D. SCOTT, Secretary.

GRATIOT COUNTY.

The Annual Meeting of the Gratiot County Medical Society was held at the Wright House in Alma, Thursday, Dec. 1th, 1913. The following program was carried out:

Call to order by the President.

Reading of minutes of last meeting.

Reception to new members.

Clinic:

Report of delegate to State Society Meeting.

Report of retiring Secretary.

Discussion.

Address of retiring President Barstow.

Election of officers for 1914.

Address by Prof. Reuben Peterson of Ann Arbor, "How and When to Empty the Uterus in Antepartum Eclampsia."

In the evening Dr. Peterson gave a popular lecture to the public in the Alma High School Auditorium, the subject being "The Rights of the Unborn Child."

The following officers were elected for the year of 1914:

President—Dr. I. N. Monfort, Ithaca.

Vice-Pres.—Dr. E. H. Foust, Ithaca.

Sec'y-Treas.—Dr. E. M. Highfield, Riverdale.

Since our last annual meeting we have held four regular quarterly meetings, including this one. Two outside speakers have addressed us, one giving a lantern-slide demonstration, and the other reading a paper by proxy. Four of our own members have read papers. There are 32 doctors in Gratiot County, 25 of whom are members, or 78 per cent. We should have at least 95 per cent. members belonging to our Society.

E. M. HIGHFIELD, Secretary.

HURON COUNTY.

The Huron County Medical Society held its regular quarterly meeting on Tuesday evening, November 18th, in Bad Axe.

Dr. George E. McKean of Detroit read an interesting paper on "Typhoid Prophylaxis," also one on "Diagnosis and Treatment of Chronic Non-Tuberculosis Joint Disease (Rheumatism)" was given by Dr. Frederick C. Kidner of Detroit. Dr. Louis J. Hirschman of Detroit was also present and took part in the discussion. After the meeting supper was served at the Hotel Morrow.

The election of officers was postponed until the next meeting.

DANIEL CONBOY, Secretary.

INGHAM COUNTY.

The Ingham County Medical Society held its Annual Meeting November 20th, and elected the following officers:

President—Samuel Osborn, Lansing.
Vice-Pres.—B. M. Davey, Lansing.
Sec'y-Treas.—F. M. Huntley, Lansing.
Delegate—L. W. Toles, Lansing.
Alternate—M. L. Holm, Lansing.
Med.-Legal Com.—G. F. Bauch, Lansing.

HENRY S. BARTHOLOMEW, Secretary.

JACKSON COUNTY.

The Thirteenth Annual Meeting of the Jackson County Medical Society was held at 2 P.M., Dec. 4, 1913, in the Library Auditorium. Twenty-five members were present.

Drs. Corwin S. Clark, W. A. Stoops, Glenn C. Hicks and F. L. Rose, all of Jackson, were received as new members. Our total membership now is fifty, the greatest it has ever been.

The Treasurer's book showed a balance of \$25.62 on hand.

A committee, appointed at the June meeting to work out a new fee schedule, made its report and recommended a raise to \$2.00 instead of \$1.50 for day visits, and \$3.00 for night visits. After an enthusiastic discussion the Society voted to put the matter over to a special meeting to be called very soon, and to which all the physicians of the city, whether members or not, shall be invited.

The Tuberculosis Committee reported a large amount pledged, and a portion collected.

The officers for the new year are as follows:

President—Dr. W. A. Gibson, Jackson.
Vice-Pres.—Dr. W. H. Enders, Jackson.
Secretary—Dr. G. A. Seybold, Jackson.
Treasurer—Dr. P. I. Edwards, Jackson.
Delegate—Dr. C. D. Munro, Jackson.
Alternate—Dr. P. E. Hackett, Jackson.

Dr. R. S. Dixon of Lansing, gave a short talk on "Every Physician a Health Officer." It was very much regretted that Dr. Dixon had to hurry home because of illness of his family.

The annual banquet was held at the Otsego Hotel at 7:30 P.M., about forty attending. Dr. C. D. Munro, as toastmaster, introduced the speakers who spoke on the following toasts:

"The Code of Ethics," Rev. T. B. Burchell.

"Our Professions," Atty. Justin R. Whiting.

"The Ladies," Dr. Flemming Carrow.

"Dignity of the Medical Profession," Rev. Father J. M. Doyle.

To close the evening Dr. Munro called upon Dr. W. A. Gibson, the new President.

G. A. SEYBOLD, Secretary.

KALAMAZOO ACADEMY.

Thirtieth Annual Meeting, Tuesday, December 9, 1913. Afternoon session, beginning promptly at one o'clock at Academy Rooms, Public Library:

Payment Annual Dues: Local members, \$5.00; out-of-town members \$4.00. Payable to F. Elizabeth Barrett, Treasurer.

Business Meeting. Election of Officers. Nominating Committee: Dr. G. D. Carnes, Dr. J. H. Crosby, Dr. J. B. Jackson.

An informal social half-hour followed by a

banquet was held at the New Burdick House at 6:30 o'clock.

Scientific Program:

1. "Diagnosis and Treatment of Certain Obscure Infections with Special Reference to Arthritis," Dr. Ernest E. Irons, Chicago, Ill.

Discussion opened by W. A. Perkins, Kalamazoo; Dr. J. H. Crosby, Plainwell; Dr. R. G. Leland, East LeRoy, Mich.

2. "Observations on Gastric Ulcers: A Study of Six Hundred Cases," Dr. Christopher Graham, Rochester, Minn.

Discussion opened by Dr. R. R. Smith, Grand Rapids; Dr. O. H. Clark, Kalamazoo; Dr. R. E. Balch, Kalamazoo; Dr. A. W. Crane, Kalamazoo.

Evening Session, 6:30 o'clock:

Informal social half-hour in parlors of the New Burdick.

Banquet, 7:00 o'clock:

Toastmaster, Dr. Herman Ostrander.

Exaugural Address, Dr. C. E. Boys, Kalamazoo.

Reminiscences, Dr. J. D. Carnes, South Haven.

Toast, Hon. Walter Taylor, Kalamazoo.

Abstract of Report of Two Cases. By Dr. G. W. Green, Dowagiac, Mich.

1. History was of a patient who had tuberculosis followed in four years by paralysis in 1904. In 1912 melanotic spindle-celled sarcoma was removed from right labium. Removal of superficial and deep inguinal glands. Postoperative treatment with X-ray with gain of nine pounds.

2. A baby thirty-six hours old. Examination revealed a blind pouch three and one-half centimeters long where the rectum ought to be. Attempts to open into the large bowel unsuccessful. Abdomen was opened and an enterostomy was done. Normal bowel movements resulted. Child died in ten days from inactive kidneys and paralyzed bowels. Autopsy: The rectum was found back of posterior parietal peritoneum, where it tapered down to a cord three m.m. in diameter and six c.m. long. The bowel re-entered the abdomen where it assumed a normal course to the right iliac region.

Abstract of Paper "Syphilis of the Nervous System." By Dr. Hugh T. Patrick, of Chicago, Ill.

Pathology caused by presence of spirochæta pallida.

Lesions of the nervous system do not differ from lesions in other tissues, viz.: liver, kidney, muscle or skin. Granulation tissue develops, necrosis and fatty degeneration results.

Syphilis of nerve cells or nerve elements themselves does not occur but of adjacent tissues outside of the specific nerve elements. Nerve cells or nerve fibers involved secondarily, extra neural syphilis.

Lesions are four in number, vascular, neuritic meningitic, and gumma. Gummatous lesions do not always occur in tumor form but in form of infiltration of vessel walls, and surrounding tissues, thus one has syphilitic meningitis or neuritis.

Symptoms:

Extremely variable; irritation and pressure from infiltration; interference with circulation.

Size and extent of lesion may be small or large, slow or rapidly progressive, local or general involvement. When blood vessels of the brain are infiltrated the process is gradual, thus the blood supply is gradually lessened. Variability, irregularity, unreasonable unexpected symptoms may be expected. Double vision momentarily one day, numbness of the hand or difficulty of micturition the next day, etc.

Syphilis rarely causes hemorrhage in the brain,

more often thrombosis; vessel calibre is diminished, interference of circulation. Cellular infiltration, causes transient symptoms; numbness of the hand, unilateral weakness, forgetfulness, carelessness in dress and personal tidiness, headaches, not specially nocturnal, more or less pain in the head and dizziness.

Pseudo-coma occurs during which the patient breathes stertorously, stupor reversal form is present; violently destructive, conclusive type, suddenly changed to unconscious and passive condition. This antedates stage of paralysis when blood stream is completely blocked off or death. There may be Jacksonian seizures.

Cranial nerve signs; third, fourth, and sixth, third and sixth particularly due to pressure from infiltration throughout course to eyes. Difficulty of respiration and swallowing and rolling of the tongue when basilar vessels are affected by endarteritis.

Syphilis usually not febrile but occasionally temperature may be high when severe toxemia occurs. Gumma may manifest itself like that of a tumor then choked disc may arise.

Syphilis of the cord is of three types:

No. 1. French type. Acute transverse myelitis, due to occlusion or interference of circulation in anterior and posterior arteries and membranous blood supply. Remak's paraplegia. Symptoms dependent upon site of lesion whether cervical, dorsal or lumbar.

No. 2. Erbs' paralysis. May not be syphilitic, marked spasticity.

No. 3. Reticulitis. Extra-medullary, extra-spinal; circulation of anterior and posterior roots disturbed. Posterior root involvement causes pain and irritation. Anterior root (motor), trophic fibres for motor cells, unilateral symptoms of progressive muscular atrophy. Pain, anesthesia and atrophy of small hand muscles. Muscles involved depend upon site of lesion; weak painful arm or neuritis results.

Diagnosis. History very important. "No person may assume to be free from syphilis because of age, sex, religious affiliation, occupation or status in society or standing in the community."

Cicatrix of hard chancre may not be found. Wassermann test is reliable; the technic of the test must be perfect and free from variations. Lumbar puncture. Irido-platinum needle ten to fifteen c.m. in length used. Seepage from puncture avoided by small calibre of needle.

Treatment. Remember that syphilis is refractory. There are incurable cases. Mercury at once when the diagnosis is made, all the patient can stand. Given inunction or intramuscularly. Salvarsan. Iodides not curative. Mixed treatment condemned.

Discussion: Dr. W. A. Stone—In 1893, 50 per cent. of paretics believed to have had syphilis; in 1903, 100 per cent. have had syphilis.

Dr. A. M. Barrett—*Spirochaetia pallida* have been demonstrated in the brain of paretics. Many psychoses have for underlying cause syphilis but gumma or endarteritis not demonstrated. Fluid of the brain and cord shows evidence of syphilis.

The Secretary's Annual Report:

The Society has convened for one special and twenty-three regular sessions. All of these were held in the city of Kalamazoo except two, one in South Haven and one in Vicksburg. There were thirty-six in attendance at the special meeting and an average of forty-six at the regular meetings. In 1912 the average was 38.7. The largest number

in attendance at any one meeting was eighty-four as compared with sixty in 1912.

The Society has four honorary, one of whom is still practicing, one associate and one hundred and thirty active members. This includes the one honorary member in active practice. One has discontinued the practice of medicine or at least he was not practicing at the time he left the city, with dues unpaid. One outside member had not paid dues for 1913 and one outside member had moved to Montana. Ten have been elected to membership as compared with fourteen in 1912. Three members have been removed from our midst by death, Dr. A. Hochstein and Dr. John Fletcher, of Kalamazoo, and Dr. G. W. Cornish, of Lawton. Two were made honorary members this year.

The medical survey of Allegan, Van Buren and Kalamazoo Counties is as follows:

Allegan County—Number of doctors registered, 34. Number that are members of the Academy, 17, or 50 per cent.

Van Buren County—Number of doctors registered, 46. Academy members, 23, or 50 per cent.

Kalamazoo County—Number doctors registered, 107. Academy members, 83, or 77 per cent.

Total number registered in the three counties, 187.

Academy members registered in the three counties, 122, or 65 per cent.

We are loaded with committees, but I believe that the chair should appoint a committee on membership to secure new members and to interest the medical men not members. The board of censors might be delegated this important phase of our work. There are sixty-five men in our community, and that adjacent, that are not members. There are some ineligible, but this should not prevent us from seeking those that are eligible.

The Bulletin has announced the date, hour, place, and published the programs for twenty-three meetings. Abstracts of the papers presented before the Academy have been prepared with as great care as possible. Only the salient points of the subject-matter have been printed. The editor has made as great effort as possible to keep the Bulletin supplied with advertisements. The Bulletin has been issued for three years or fifty-eight times at a total cost of \$493.85, or an average cost of 6 $\frac{2}{3}$ c per member per issue. The mailing list consists of members of the society, medical men in the community that should be members, local laymen greatly interested in medical affairs in general and county secretaries of the state. The latter are mailed the Bulletin at the discretion of the editor. The receipts from advertising in the Bulletin have totaled for three years, \$481. This leaves a deficit of \$12.85 for the three years. The editor wishes to announce here that unless the members patronize our advertisers and mention the fact that their "ad" was seen in the Bulletin we will be unable to derive a revenue through the avenue of advertising. Heretofore I have been successful in filling the Bulletin up with ads. on the date of the annual meeting, but this year I have been told repeatedly that the ad. given was only complimentary and that it did not pay. Again I was told that I would have to show a card that the Commercial Club endorsed the Bulletin.

We have been active in many phases of medical work, but we are weak in concerted action upon health and medical legislation. The programs have been of a great variety and the standard of scientific work presented has been of an advanced character. "You get it first" at the Academy is not putting it too strong.

We strive to maintain a high standard of efficiency but we can not unless every member takes an active part in the programs as essayist or in the

discussion. He should sacrifice his personal convenience to be present at as many meetings as possible. He should make visitors welcome and extend a cheerful greeting to colleagues and laymen as well. He should be an active member in committee work and not passive. He should feel free to make suggestions as to good essayists for the program and as to improvement in the management of the society. The master-words in your medical society are Work and Co-operation, "lend a hand," for to travel hopefully in the practice of medicine is to labor in your medical society.

"The well-conducted medical society should represent a clearing house, in which every physician of the district would receive his intellectual rating, and in which he could find out his professional assets and liabilities. We doctors do not 'take stock' often enough, and are very apt to carry on our shelves stale, out-of-date goods. The society helps to keep a man 'up to the times,' and enables him to refurnish his mental shop with the latest wares. Rightly used, it may be a touchstone, to which he can bring his experiences to the test and save him from falling into the rut of a few sequences. It keeps his mind open and receptive and counteracts that tendency to premature senility which is apt to overtake a man who lives in a routine."—Osler's *Aequanimitas*.

C. B. FULKERSON, Secretary.

Treasurer's Annual Report for 1913:

Receipts.

Balance forward from 1912	\$ 9.05
Membership	572.00
Advertising from Bulletin	229.00
Transferred from special assessment fund .	138.60
Loan from bank	93.00
Left from banquet	11.50
Dinner to outside members	19.00
A. M. A. Public Health Com.	12.00
Social Hygiene Committee	23.00
	<hr/>
	\$1,107.15

Disbursements.

State Society	\$ 381.75
Telephone	30.65
Telegrams	1.15
Postage and stationery	76.70
Magazines	9.75
Care of rooms	29.83
Light	6.67
Bulletin printing	267.35
Flowers	21.30
Chairs, six doz.	45.00
Improvements	138.60
Repairs	2.00
Printing advertising	3.60
Church rental	12.00
Insurance	10.00
Cartage	1.14
Civic League	15.00
Interest	1.14
Paid on bank note	50.00
	<hr/>
	\$1,103.63

Cash on hand	3.52
One outside member dues unpaid for 1193.	
Special assessment fund:	
80 members paid at \$3.00	\$240.00
Desk and magazine rack	\$ 42.50
Repair of chairs	93.60
Desk light	2.50
Total	<hr/>
	138.60

Balance from special assessment on savings acct.	<hr/>
	\$101.40

F. ELIZABETH BARRETT, Treasurer.

Report of Clinical Program Committee:

The following cases were operated:

Abscess (pelvic)	4
Adenoids	11
Amputations	3
Anus (oper. for art.)	1
Appendicitis	20
Bartholin's Glands (resected)	2
Cholecystotomy	1
Circumcision	1
Curettage	10
Cysts (ovarian)	3
Cystoscopic Exam.	3
Eye (enucleation)	1
Fracture (comp.)	1
Gastro-enterostomy	3
Hemorrhoids	4
Herniotomy	1
Hysterectomy (supra.)	1
Hysterectomy (vaginal)	1
Laminectomy	1
Orchidectomy	1
Ovariectomy	6
Panhysterectomy	3
Perineorrhaphy	8
Perineorrhaphy (for recto-vag. fis.)	1
Peritonitis (T. B.)	1
Prostatectomy	2
Rd. Lig. Op. (Montgomery)	4
Salpingectomy	4
Spermatocele	1
Thyroidectomy	1
Tonsillectomy	11
Trachelorrhaphy	5
	<hr/>
Total	120

Cases presented at the	
Dermatological Clinic	10
Neurological Clinic	22
Medical Clinic	12
Tuberculosis Clinic	21
Scoliosis Clinic	11
	<hr/>

Miscellaneous Case Demonstration:	
Tuberculosis Hip	1
Hirschsprung's Disease	1
	<hr/>
Total cases	80
Grand total—	
Surgical cases	120
Medical and Miscellaneous	80
	<hr/>
	200

"To study the phenomena of disease without books is to sail an uncharted sea, while to study books without potients is not to go to sea at all."—Osler.

DR. A. S. YOUNGS, Chairman.

Annual Report of The Social Hygiene Committee:

In March of this year the Social Hygiene Committee in co-operation with the president of the Vice Commission arranged a meeting for the discussion of social diseases. This meeting was held in the Academy of Medicine rooms. There were in attendance members of the Ministerial Alliance, members of the bar, city officials, teachers of our public schools, members of the vice commission and physieians. The object of this conference was to discuss social diseases as they exist in Kalamazoo. Physicians presented the medical side.

1. Social diseases as found in juvenile work.
2. Social diseases from the surgeon's standpoint.
3. Social diseases in relation to the house and posterity.
4. Social diseases in relation to our institutions and the insane.

The influence of this meeting has been far-reaching. We feel that this conference with people of influence has done much to make it possible for sex hygiene to be taught in our public schools.

Many lectures have been given on social hygiene before the women's societies of our churches.

In co-operation with the Public Health Education Committee, lectures on social diseases have been given at Kalamazoo College, Parsons' Business College, two of our paper mills and several other factories.

A member of our committee has responded to two requests from outside of the city to give information upon the subject of social diseases.

More has been done for the girls of our city than for the boys. We trust that next year's committee will do more than we have been able to do.

Respectfully submitted,

ALICE BAKER ELLSWORTH.

Annual Report of the A. M. A. Public Health Education Committees:

Addresses reported, 43.

Miscellaneous addresses, 18.

Total number of people reached, conservative estimate, 5,500.

Medical Aspects in Juvenile Court, Dr. Alice Barker Ellsworth.

Social and Personal Hygiene, Dr. Alice Barker Ellsworth.

First Aid in Emergency, Dr. C. E. Boys.

Eugenics, Prof. Praeger.

Demonstration on Home Resources, Dr. Frances Elizabeth Barrett.

Child Welfare, Dr. Della P. Pierce.

Eugenics, Dr. Victor C. Vaughan, Ann Arbor. (Attendance at this lecture a record breaker.)

What Every City Can Do, Dr. W. A. Evans, Chicago, Ill

DR. DELLA P. PIERCE, Chairman.

Annual Report of the Committee on Illegal Practice:

The committee has, during the year, taken up with the Prosecuting Attorney a number of quack advertisements that have appeared in the local papers. In all the cases these advertisements were so worded that they came within the letter of the law.

The committee has also investigated the legal standing of the men who were running quack advertisements in the local papers, but in each case they were properly registered and the Prosecutor could take no action.

The case of Doctor Croziero, who has been working the small towns in this part of the state, was taken up with the Prosecutor. He promised to swear out a warrant against Croziero if the State Board of Medical Registration would notify him that the man was violating the Medical Registration Act. This was taken up with the State Board but no action was taken. However, the Prosecuting Attorney of Van Buren County afterwards had him arrested and fined for illegal advertising. There is no question that the State Board of Registration could take away his license if it would act.

The committee wishes to present the following resolution in appreciation of the active part the Chicago Tribune has taken in the suppression of quacks.

Be It Resolved, That the Academy of Medicine heartily endorses the attitude that the Chicago Tribune has taken toward all fake medical advertising, quack doctors, patent medicine, etc., and the elimination of all such advertising from its columns.

Be it further Resolved, That the Secretary be instructed to make copies of said resolution, one

for the files of the Academy and one to be mailed to the Chicago Tribune.

W. DEN BLEYKER, Chairman.

Annual Report of Public Health Committee:

Your committee on Public Health and Education respectfully submits the following report:

1. Feb. 5, "Oral Hygiene," Dr. H. H. Tashjian.
2. Feb. 5, "Tonsils and Adenoids," Dr. E. J. Bernstein.
3. Feb. 12, "Child Welfare," Miss Lucy Gage, Western State Normal.
4. Feb. 19, "Heredity," Dr. L. H. Harvery, Western State Normal.
5. Feb. 26, "Housing Problems," Dr. L. H. Stetson, Kalamazoo College.
6. Feb. 26, "The Housing Problem and Its Relation to Tuberculosis," Dr. S. R. Light, Dr. Herman Ostrander.
7. March 5, "Pure Food and Drugs," Dr. S. R. Light.
8. March 12, "Contagion," Dr. Blanche Epler.
9. March 26, "Community Hygiene"
 - (a) "Our Streets and Sewers," Andrew Lenderink, City Engineer.
 - (b) "Our Water Supply," George Houston, City Water Commissioner.
 - (c) "Disposal of Refuse and Garbage," Dr. A. H. Rockwell, City Health Officer.
 - (d) "Sanitary Plumbing," Mr. W. H. Andrews, City Plumbing Inspector.
 - (e) "Flies as a Cause of Distribution of Communicable Diseases," C. S. Carney.

DR. L. H. STEWART, Chairman.

Report of Library Committee:

The Library Committee has been greatly hampered this year on account of their inability to use the funds appropriated to them by the Academy, but which have not been available by reason of large expenditures for other things.

We have therefore only permitted ourselves to subscribe for two magazines, "Journal of Infectious Diseases" and "Annals of Surgery."

Through the courtesy of the management of the A. M. A. we have been given the "American Journal of Diseases of Children," and "Journal of the American Medical Association," and other journals, a list of which is appended, have been sent us gratis.

We have been asked to order a number of books, which are really needed to keep up the interest in the library, and desire an appropriation of at least \$70 to make up for the shortage this year.

A reading desk for keeping the journals has been added to the library equipment, but though this is for the library, the fund for it was independently subscribed. This may possibly be charged up to the library account, but we feel that the full amount should be spent for books and periodicals.

New Your Medical Journal, A. R. Eliot.

The Therapeutic Gazette, H. A. Hare.

The Journal of the Michigan State Medical Society, State Council.

Interstate Medical Journal, Otho F. Ball, Philip Skrainka.

California State Journal of Medicine Medical Society of California.

The Journal of the American Medical Association Board of Trustees.

International Journal of Surgery, International Journal of Surgery Company.

Indianapolis Medical Journal, S. E. Earp, A. W. Brayton and Scherer Norris.

New York State Journal of Medicine, John Cowell Mac Evitt.

Merck's Archives, Merck & Co.
American Journal of Diseases of Children, American Medical Association.
Detroit Medical Journal, James Herbert Dempster.
St. Paul Medical Journal, Ramsey County Medical Society.
The American Medical Compend, Toledo Medical and Surgical Reporter Co.
The Physician and Surgeon, J. W. Keating & Reuben Peterson.
American Medicine, H. E. Lewis, Chas. E. Woodruff.
Dominion Medical Monthly, Geo. Elliott.
The Cleveland Medical Journal, Oscar T. Schultz.
E. J. BERNSTEIN, Chairman.

Report of Program Committee:

By way of report it may be of interest to summarize and classify the programs of the Academy of Medicine for the year 1913.

Papers or discussions to the number indicated were given before the Academy of Medicine on the following subjects:

Internal Medicine	8
Surgery	9
Public Health	9
Nervous and Mental Diseases	4
Dermatology and Syphilology	3
Infectious Diseases	7
Gynecology	2
Medico-legal	3
Pediatrics	1
Genito-urinary	1
Reviews of Literature and Case Reports	48
Reports of Meetings or Clinics attended by Members	6

Of those who have appeared before the Academy thirty were not members of the Academy and came from a distance.

There were six papers given by non-members of the Academy, residents of Kalamazoo.

There were thirty-two papers by members of the Academy.

The attention of the members of the Academy is called to the fact that it is impossible for a program committee consisting of only a few members to know of all the interesting papers that might be available and it is therefore highly desirable that all members who have knowledge of persons who could supply papers of interest to the Academy should advise some member of the program committee of this fact.

Respectfully submitted,
S. R. LIGHT, Chairman.
C. B. FULKERSON, Secretary.

TRI-COUNTY SOCIETY.

At the regular meeting of the Tri-County Medical Society, held Nov. 6, 1913, the following officers were elected for the ensuing year:

President—Dr. Otto L. Ricker, Cadillac.
Vice-Pres.—Dr. Albert E. Stickley, Mesick.
Secretary and Treasurer—Dr. Rudolph J. E. Oden, Cadillac.
Board of Directors—Drs. C. E. Miller, W. J. Smith, Cadillac; V. F. Huntley, Manton.
Program Committee—Drs. Rudolph J. E. Oden, D. Ralston, G. D. Miller, Cadillac.
Delegate to State Meeting—Dr. S. C. Moore.
Alternate—W. B. Wallace.
Finance Committee—Drs. J. M. Wardell, B. H. McMullen, Cadillac; W. B. Wallace, Manton.
Medico-Legal Com.—Dr. V. F. Huntley, Manton.
R. J. E. ODEN, Secretary.

The regular meeting of the Tri-County Medical Society was held at Cadillac Thursday, December 4th, 1913. The Society was entertained at a dinner at 6:45 p.m. at the home of Dr. and Mrs. O. L. Ricker, The doctors comprising the Society, together with the special guests, made a very sedate looking gathering. The good feeling and fellowship which is always predominant among the physicians of the Tri-County Medical Society waxed to the highest degree. At the close of the elaborate dinner the guests repaired to the living room, where, amid the fragrant fumes of choice Havanas, the reels of wisdom and wit began to unroll, until the house was called to order and the regular program was begun.

The papers read were, "Repair of Fractures," by Dr. Rudolph J. E. Oden of Cadillac; "Recent Advances in Bone Surgery," by Dr. G. D. Miller of Cadillac, and "Indications for Cerebral Decompression," by Dr. Frederick Warnshuis of Grand Rapids. After the papers had been read, Dr. W. T. Dodge of Big Rapids, one of the honorary guests, opened the discussion in a very fitting manner. Dr. Dodge being a surgeon of many years' experience, and a student, has a storehouse of information worth while, and as always is the case, he was very generous in sharing it.

Dr. B. H. McMullen, who recently returned from Baltimore where he spent some time at the Johns Hopkins Hospital, and in Dr. Kelley's Private Hospital, was full to overflowing with new ideas, and after ably discussing the papers presented he deviated from the subject and related many of the new things which he had learned while away, all of which were of extreme interest to everyone present.

Doctors D. Ralston, J. M. Wardell, C. E. Miller, in fact everyone present, took part freely in the discussion, deviating at times with happy remarks, all pertinent and apt. The essayists closed the discussion of their papers.

Dr. Warnshuis, the Secretary of the State Medical Society, had favored us by his presence. Although he was a stranger to most of the members, they all felt towards him as if he were an old acquaintance. The State JOURNAL has made such rapid strides forward, and has reached such a state of excellence during his short term of service that for this reason the presence of Dr. Warnshuis was especially appreciated. His ability to fill the position he now holds has already been demonstrated, and was emphasized more than ever during the evening. The paper which he presented showed that he was not only capable of acting as Secretary, but also that he was a student and well abreast of the times.

The Society by a rising vote expressed their thanks to Dr. Warnshuis for attending the meeting and also for the part he took in making it instructive and entertaining. He may hereafter consider himself a welcome guest at any time he may choose to favor the Society with his presence, and may also feel assured that the Tri-County Medical Society is, and will be a loyal supporter of any move which may be of interest to the State Society.

During the course of the evening Dr. S. E. Niehardt of South Boardman, and Dr. J. W. Jackman of Halletta, were elected to membership of the Society.

By a unanimous rising vote the Society expressed its appreciation to the Host and Hostess, Dr. and Mrs. Ricker, for their royal entertainment.

After an informal experience meeting, lasting into the early hours, the Society adjourned, feeling that the Tri-County Medical Society is a live organization and is keeping abreast with any other similar organization.

RUDOLPH J. E. ODEN, Secretary.

County Secretaries Department

Each individual society has, as a rule, one obstacle that is exasperatingly bobbing up and preventing a united, concentrated exhibition of organized professional energy and influence. In one county it may be professional jealousy, in another a general lack of interest and in another a domineering "clique," etc., etc. Whatever it may be it plants itself midway in the road and prevents progress and advancement with an ultimate result that that county society remains in a dormant, semi-quiescent state, utterly failing to accomplish the purpose for which it was organized.

It is up to the county secretary to make the diagnosis as to what is the real cause of his society's failure to progress and having determined the cause he must then institute the necessary measures to get rid of it. The following suggestions may enable some of our secretaries to instill new life and activity in their organizations:

1. Think, plan, and study your society, not every two, three or four weeks, but every day.
2. Take an active interest in National, State and County organization efforts and apply their methods whenever possible to your society.
3. Be prompt and courteous in your correspondence with your members.
4. Learn to be a good mixer.
5. Make it a point to be the first one at your meetings to greet the old, welcome the new members and introduce your invited guests.
6. Become acquainted with every member; ascertain his likes and dislikes and get him interested in society work by utilizing his "hobby."
7. Manage to get two warring members together, but, having done so do not run away. Stay by them and if their conversation is drifting back to the old sore, stick in your oar, back water for a while and then steer them on a new course. The idea being to make them realize that they have something in common and that the other fellow isn't such a reprobate after all. If you do this once or twice the old bone of contention will remain buried and these men will remain friends.
8. Plan a "feed," a smoker or dinner often. Get the dignified member to unlimber and loosen up and tell his favorite story and then come back at him with one just a little better and you will have him interested.
9. Get your bashful member, who crawls off in some corner, to be active on some committee or have him discuss a paper; this will cause his nervousness to disappear and he will become one of your ready helpers.

10. Have three or four members upon whom you can always depend and if, after the reading of a paper, that icy blanket of stillness without a discussor is threatening, give one of them the wink to get up and start the discussion and thus obviate having a meeting end in failure which may easily be redeemed by a good active discussion.

11. Take plenty of time in arranging your program and select those to participate who will present the various subjects in an interesting and up-to-date manner and not afflict your meeting by presenting a text-book paper. There is nothing that will put a damper on your meeting as a member who will occupy an hour or more of your time in the reading of a paper composed of text-book extracts.

12. Welcome responsibility. It is the development of power. Do not fear criticism—it is the price you pay for success. Let no man accuse you of being a "has-been." The world listens, sometimes against its will, to the man whose ideas are his own. To lead men you must think for them and think ahead of them.

All these are little things, still it is the combinations or admixtures of these same little things which has made in the past and will in the future make the secretary's work easier and more enjoyable and will do much towards bettering your meetings. The field of the secretary's work is a large one and each district requires measures to correct its own individual difficulties. It is up to the county secretary to solve this problem.

The foregoing thoughts which we have gathered here and there have helped us in our work and they are passed along in the hope that they may stimulate and encourage some secretary to continue the work of their office with renewed energy and effort.

We desire to remind you to use the blanks that were sent you last month when making your remittances to this office. They will facilitate yours as well as our work and serve to keep our records more accurately.

May we not have a report of every meeting that is held by your society? We acknowledge receipt of the notices of your meetings and would like very much to also receive a report of the meeting itself and all that transpired.

Book Notices

DISEASES AND DEFORMITY OF THE FOOT. By John J. Nutt, B.L., M.D., Surgeon in Chief, N. Y. State Hospital for the Care of Crippled and Deformed Children; Surgeon, Sea Breeze Hospital; Orthopedic Surgeon, Willard Parker Hospital, New York. 8 vo., 300 pages, 105 illustrations and plates. Price \$2.75. E. B. Treat & Co., 241 W. 23rd St., New York.

This interesting and practical handbook is prepared for the use of physicians who have not had the opportunity for the thorough study of this neglected subject, and who are desirous of prescribing scientifically and successfully for their patients who consult them regarding their pedal conditions.

Many of the ailments referred to the feet call for treatment that is comparatively simple, and a general practitioner can and should assume the responsibility of preventing deformities, correcting abuses and treating minor diseases of the bones and joints. Chilblains, corns, ingrowing toe-nail, painful heel, excessive sweating, etc., may be cured by simple measures, and these, as well as operations for severer complications, are fully described and illustrated. The volume should receive a splendid reception. Its merits are apparent after a cursory perusal of its pages. It is destined to be of great assistance to the doctor.

CAUSES AND CURES OF CRIME. By Thomas Speed Mosby, member of the American Bar; former Pardon Attorney of Missouri; member of American Institute of Criminal Law and Criminology. Cloth. Illustrated, 354 pp. Price \$2.00. C. V. Mosby Co., St. Louis, Mo.

This book represents the views entertained by one of the leading criminologists of the country on crime and the criminal. It forecasts the aim and intent of those who are working for the new penology, and is based on the premises that crime is in most cases the outcome of a diseased mind.

The author stands for prison reforms, the use of the hospital instead of the penitentiaries, the conservation of man instead of his degradation when crime is first committed.

The subject is one that concerns the doctor, for to him and the economists the people are looking for the solution of the problem. For this reason the study of this volume is urged. It is an excellent exposition of the subject and the author has compiled his data and woven it in an impressive, interesting and instructive manner. The book cannot be read without profit. It merits your serious consideration.

PYORRHEA ALEVOLARIS. By Frederick Hecker, D.D.S., A.M., M.D., St. Louis, Mo. Cloth, 157 pp. Illustrated. Price \$2.00. C. V. Mosby Co., St. Louis, Mo.

Pyorrhea Alveolaris has until recently been looked upon as a local infection of but little importance. With a knowledge of the results secured by investigators as to its bearing upon the general health of the person thus affected, we must now admit that pyorrhea is a disease which must receive consideration and attention from all men of the healing art. The author of this work presents the reader with a rather thorough consideration of pyorrhea, and covers very ably its varieties, pathology and local, constitutional and prophylactic treatment. Bacteriological technic and the making of autogenous vaccines, and their value in the plan of treatment, receive special consideration.

The work, while interesting and recording the author's experience and investigations, cannot be considered as the last word. Much investigation remains to be done; many observations must still be made ere final and definite conclusions can be reached. The volume contains much which every physician should know, and for this reason the work is commended to our readers. The book merits your study and thought.

THE PRACTITIONER'S VISITING LIST for 1914. An invaluable pocket-sized book containing memoranda and data important for every physician, and ruled

blanks for recording every detail of practice. The Weekly, Monthly and 30-Patient Perpetual contain 32 pages of data and 160 pages of classified blanks. The 60-Patient Perpetual consists of 256 pages of blanks alone. Each in one wallet-shaped book, bound in flexible leather, with flap and pocket, pencil with rubber, and calendar for two years. Price by mail, postpaid, to any address, \$1.25. Thumb-letter index, 25 cents extra. Descriptive circular showing the several styles sent on request. Lea & Febiger, Publishers, Philadelphia and New York.

Being in its thirtieth year of issue, The Practitioners' Visiting List embodies the results of long experience and study devoted to its development and perfection.

It is issued in four styles to meet the requirements of every practitioner: "Weekly," dated for 30 patients; "Monthly," undated for 120 patients per month; "Perpetual," undated, for 30 patients weekly per year, and "60 Patients," undated, for 60 patients weekly per year.

The text portion of The Practitioner's Visiting List for 1914 has been thoroughly revised and brought up to date. It contains, among other valuable information, a scheme of dentition; tables of weights and measures and comparative scales; instructions for examining the urine; diagnostic table of eruptive fevers; incompatibles, poisons and antidotes; directions for effecting artificial respiration; extensive table of doses; an alphabetical table of diseases and their remedies, and directions for ligation of arteries. The record portion contains ruled blanks of various kinds, adapted for noting all details of practice and professional business.

Printed on fine, tough paper suitable for either pen or pencil, and bound with the utmost strength in handsome grained leather, The Practitioner's Visiting List is sold at the lowest price compatible with perfection in every detail.

Once used it will be considered an essential requisite by every owner. It must be seen to be appreciated.

ANNALS OF SURGERY. A monthly review of Surgical Science and Practice. Edited by Lewis S. Pilcher, M.D., LL.D., of New York. J. B. Lippincott Co., Philadelphia. Annual Subscription \$5.00 per year.

The December issue of this valuable Journal is a special anesthesia number of 253 pages. The articles bearing upon anesthesia are by Gwathmey, Connell, Parsons, Honan, Cunningham, Janeway, Cotton, Bainbridge, Mereness and McMechan, and cover all that is new in the line of anesthetics, as well as the indications and mode of administration of special forms of anesthetics in various operations. The articles are worthy of the careful perusal and study of every surgeon and anesthetist. The editor and publishers are to be congratulated upon their preparation of such an interesting and instructive symposium upon this important subject.

PROGRESSIVE MEDICINE. Vol. XV, No. 4. A quarterly digest of advances, discoveries and improvements in the medical and surgical sciences. Edited by Hobart A. Hare, M.D. Paper. 441 pages. \$6.00 per annum. Lea & Febiger, Philadelphia.

The contributors to this number are: E. H. Goodman, J. R. Bradford, Charles W. Bonny, J. C. Bloodgood and H. R. M. Landis. The subjects covered are: Diseases of the Digestive Tract and Allied Organs, Diseases of the Kidneys; The Liver, Pancreas and Peritoneum; Genito-Urinary Diseases; Surgery of the Extremities; Shock, Anes-

thesia, Infections, Fractures and Dislocations, and Tumors; Practical Therapeutic Referendum.

Maintaining its high standard, this issue of *Progressive Medicine* closes the XV. volume of this series. One cannot very well do without this digest if he is desirous of remaining conversant with the opinions of authorities upon the advancements that have occurred in the past three months.

INTERNATIONAL CLINICS. A quarterly of illustrated clinical lectures on treatment, medicine, surgery, neurology, pediatrics, obstetrics, gynecology, orthopedics, pathology, dermatology, ophthalmology, otology, rhinology, laryngology, hygiene and other topics of interest to students and practitioners. Edited by Henry W. Catell, A.M., M.D. Vol. IV, 23rd Series. Price per volume, \$2.00. J. B. Lippincott Company, Philadelphia.

This fourth volume, of a series that long ago demonstrated its merit, maintains the reader's interest from cover to cover. An exhaustive article and study on Traumatic Lipemia and Fatty Embolism by A. S. Warthin of Ann Arbor merits especial mention. This volume contains articles that should appeal to every doctor; to review each one would necessitate too much space. We commend the entire volume and series to our readers.

THE MEDICAL AND SANITARY INSPECTION OF SCHOOLS.

By S. W. Newmayer, A.B., M.D., in charge of the Division of Child Hygiene, Bureau of Health, Philadelphia. 12 mo. 318 pages, with 71 engravings, and 14 full page plates. Cloth, \$2.50, net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

The progress of our civilization, the welfare of the individual, and the general good of the society are contingent upon the efficiency of the education imparted to the children in public schools. In order that the children may receive all the advantages of our modern educational methods, they must not be retarded or handicapped by means of mental or physical ailments or disease. It is the province of our profession to read their mental and physical index and determine how the abnormal child may be assisted to receive the knowledge requisite for his future.

Public health work is no longer limited to the physician and health officer, but it is of great importance to every intelligent person. The sanitation of the school and the health of the pupils, with its widespread application, is acknowledged to be the most important phase of the public health problems of today. The volume by Dr. Newmayer is an authoritative work covering the subject in a clear, brief and practical manner. In this book the health officer can obtain detailed and concise information on efficient organization and administration of school inspection; the physician employed in or contemplating such work will find instructions in methods of diagnosis adapted to school examinations, which differ vastly from college teaching or private practice. The methods which bring the best results, both in the prevention of epidemics, and in the correction of physical defects, are given in detail. Civil service examination questions are appended for those desiring to prepare for competitive examinations.

The nurse and her relations to the work, to the physician, the teacher and the home are given in full. Chapters are devoted to inspections when physicians are not available.

For the teachers and other school authorities there have been included methods of co-operation and such valuable data as, how to teach the fundamental laws of health; definite and accurate infor-

mation on the relation of mentality to physical conditions; new and common-sense views on the non-promoted, backward and mentally deficient child.

The sanitation of the school building and grounds is given full consideration, and a simple and very practical method of recording all information for the benefit of the child and the school is included. Instead of the citation of many examples, a complete system of records is presented. A large subject has been adequately covered in one small volume. The illustrations are not only numerous, but have been chosen to aid the reader.

This is a volume that merits a place in every physician's library. We cannot commend it too strongly. Purchase it at your earliest opportunity.

Miscellany

PULMONOL.

Pulmonol is a consumption "cure" put out by the Pulmonol Chemical Co., New York. As always in the case of consumption "cures," the testimonials issued may be divided into two classes, those who really had tuberculosis and those who did not have it. Investigation of some of the testimonials given some time ago, generally show that those who relied on the nostrum are dead while those who got well, never had tuberculosis. Examination in the A. M. A. Chemical Laboratory indicated that each fluidounce of Pulmonol was approximately equivalent to 29 gr. of potassium guaiacol sulphonate, 10 gr. of sodium benzoate and 1-24 gr. of strychnine sulphate (Jour. A. M. A., Nov 29, 1913, p. 1998.)

PENNYROYAL, TANSY AND OTHER "EMMENAGOGUE OILS."

An examination of the oils of pennyroyal, tansy, savin, rue, thyme, turpentine and of apiol proves that they have no specific or directly stimulating action whatever on the uterine muscles; on the contrary they prohibit the contraction of the uterus and even paralyze it. If these oils exhibit any emmenagogue or abortifacient action whatever, it is due to a general constitutional poisoning or gastro-intestinal irritation and not to any specific action in accord with the intent for which they are sometimes administered. (Jour. A. M. A., Nov. 8, 1913, p. 1725).

SENSITIZED VIRUS-VACCINE.

Besredka asserts that the injection of living germs sensitized in certain ways produces a more substantial immunity and greater production of antibodies than the injection of germs killed by heat or in other ways. In apes sensitized typhoid bacilli gave absolute protection, causing no fever and no reaction, while killed bacilli failed to protect adequately. As a result of these experiments a number of "sensitized virus-vaccines" have been prepared and the anti-rabic vaccine used in France is now a sensitized virus. Before the employment of the sensitized typhoid virus-vaccine can be considered, much evidence must be produced that there is no danger of producing typhoid carriers and that this vaccine gives any better protection than the vaccine now in use. Similar objections hold against other vaccines of this kind and at present the obstacle to the use of such living germs for protective purposes would seem to be quite impassable. (Jour. A. M. A., Nov. 15, 1913, p. 1814).

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Reading of Papers

CHAIRMAN'S ADDRESS—SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY.

EUGENE SMITH, M.D.
DETROIT, MICH.

GENTLEMEN :—

In making me your chairman you have done me a very great honor, which I assure you I fully appreciate, and for which I am duly thankful. I wish to beg your indulgence for any short-comings of mine while in the chair.

It is with feelings of satisfaction and pride that I note the present status of specialism in medicine and surgery, evidenced in no small way by the members and professional standing of members of our own section. It seems but a few years since that physicians remarked disparagingly of specialists, and he who became an ophthalmic and aural surgeon placed his good name in jeopardy—in other words entered into quackery. In spite, however, of this attitude on the part of the general profession, ophthalmology and oto-laryngological medicine and surgery have been elevated in a scientific and ethical manner to the pinnacle upon which they now rest serene, recognized by all as being founded upon the sciences of anatomy, physiology and pathology, and derision has disappeared. It is my good fortune to have been somewhat of a pioneer in this good work and to have borne some of the early opprobrium. Hence, I say feelings of satisfaction and pride.

The past year has not been characterized by any great events in the world of our specialties; neither abroad nor at home have any great discoveries been made. Still I believe we may claim to be progressing towards greater accuracy in most departments of clinical and pathological knowledge, and much work has been accomplished in the true scientific spirit. As a section, one of our aims should be to secure the co-operation of family practitioners and get them to join us and assist in some of our discussions. I admit the difficulty in realizing

this aim, but we have many things in common, and it must be admitted that our special departments are not portions of the body separate and distinct from the whole. The details of operative practice may be and probably are of no particular interest to the general practitioner. I believe, however, we should endeavor to keep on a broad foundation, and that we may with interest and benefit to ourselves, occasionally invite a general practitioner to read a paper before our section bearing upon our several specialties, as for instance, "Graves' Disease," arteriosclerosis, Bright's Disease, diabetes, etc.

I believe less time should be given to reading of papers, and the time for discussion extended; also, that we might with profit attempt more in the way of organized discussions and we should have a stenographer. The making of accurate verbatim reports of our meetings is by no means easy. The employment of newspaper reporters seems impracticable, because of their lack of knowledge of the technical terms so freely used in all our discussions, and the natural consequence is a frightful number of gaps left to be filled either by the speaker himself, or by the secretary. Of course, the ideal report would be made only by a medical man who is a shorthand writer. This section needs and must have a shorthand reporter, notwithstanding the difficulties. It is true that in the discussion which follows an original paper, opportunity is afforded for all present to bring forward their quota of facts. This is not exactly what is desired. On such occasions men often speak from memory only and many, for lack of memory, do not speak at all. But few may have taken the trouble or have had opportunity to become acquainted with the author's views, this causes the discussion to savor of the impromptu and slipshod. Now, if our section had a small standing committee to arrange for the bringing forward each year, one or more definite questions concerning some special disease respecting which a brief, clear exposition should be printed in THE JOURNAL of our Society a month or so before the meeting, I believe great good would be done, and interest increased, and the facts

contributed will have been well considered. It should be the aim of a section like ours to play the part of a concentrating lens, as it were. Among our clearest duties, gentlemen, is one to the general profession: it is that of affording correct appreciations of the dangers arising from the use of certain common remedies.

Many of us have seen attacks of acute glaucoma caused or precipitated by atropine. Many of us have seen eyes lost through purulent ophthalmia when only boracic acid had been depended upon in treatment. No doubt similar, harmful examples exist in the ear and throat divisions of our section and it devolves upon us that some means be taken towards the relief of these evils. Among the organized discussion already suggested would it not be well to consider the subject of dangerous remedies?

In conclusion, gentlemen, I would remark, that we are assembled not only as devotees of science, hoping to derive mutual benefit from the interchange of opinions on themes of professional interest, and from new researches into the mines of scientific store to be unfolded, but we are here as fellowmen, bonded in the sympathy of common labors and pursuits, and entertaining for each other sentiments of esteem flowing from the elevated calling of which we are members.

Gentlemen—again I thank you.

THE OPERATION FOR CATARACT WITH A REPORT OF SIXTEEN CASES FROM A SERIES OF EIGHTY-FIVE OPERATIONS *

D. EMMETT WELSH, M.D., F.A.C.S.
GRAND RAPIDS, MICH.

In the reporting of these cases it is not my intention to advance any new methods or procedures or to condemn any given or selected method. My only desire is to describe and outline the methods I have employed and which have proven to be satisfactory to myself and to my patients.

There are certain minor as well as major conditions that should be considered; foremost we should consider the patient, his peculiarities, his anxieties and his fears as he gradually recognizes that his vision is becoming more and more impaired, his dread for operative interference, the meddlesome friends who impart to him the information of failure in this or that person who had sustained such an operation—all this causes the patient to become apprehensive as to the ultimate result of his condition. In view of this, we should not neglect securing the proper control and confidence of

the patient and thus secure his active co-operation in our work.

The important steps of the operation are:

The Preparation of the Patient.

The Technic of the Operation.

Post-operative treatment and care.

THE PREPARATION OF THE PATIENT.

A careful examination is made of the ocular and palpebral conjunctival and lacrimal structures. If the examination reveals these to be normal and the nares in similar condition, the patient is sent to the hospital. Should our examination, however, reveal an infective and inflammatory condition operation is deferred and the indicated treatment to overcome the infective or abnormal condition is instituted.

I prefer to have the patient enter the hospital twenty-four to thirty-six hours before the operation. This preliminary hospital residence permits him to become familiar with his new surroundings and nursing attendants and thereby an increased confidence is established.

A urinalysis is ordered and should this examination reveal a small amount of albumin or a low percentage of sugar the operation is not delayed or postponed on that account. The blood pressure is taken and if this is over 165 mm. mercury, operative work is postponed. The intestinal canal is unloaded by means of calomel in small doses and followed with a saline cathartic. A hot bath is ordered at bedtime.

The following morning, the day before the operation, and every three hours during the day three drops of a 10 per cent. solution of argyrol is instilled into the eye; it is allowed to remain for a short time and then it is washed out by means of a normal saline solution. The nares are sprayed every three hours with a 1-800 solution of potassium permanganate.

My preference for the time of performing the operation is in the evening, under electric light, the operation being usually done about eight o'clock. At 6 P.M. the eyebrows are shaved; the forehead and eyelids are washed with soap and water followed by a 1-4000 solution of bichloride of mercury. A compress saturated with a 1-5000 solution of bichloride is kept on the eyelids until the time of operation. After anesthesia has been produced the conjunctiva is washed with a 1-5000 solution of bichloride.

The instruments are sterilized by boiling and are then immersed in 70 per cent. alcohol, dried and suitably arranged upon a convenient stand before the patient is brought to the operating room. Absolute quietness is insisted upon.

These minor details I believe are helpful to the patient, who, though seemingly quiet and collected, is naturally sensitive to what is

* Read before the Section on Ophthalmology and Oto-Laryngology of the Michigan State Medical Society at its 48th Annual Meeting held in Flint Sept. 4, 5, 1913.

transpiring around him and a most commonplace remark or a hint of levity may be construed by him into something different and an appalling danger formulated.

TECHNIC OF OPERATION.

The instillation of the anesthetic should be done by the operator and while doing so the patient should be the recipient of encouraging and assuring words. I formerly used a 4 per cent. cocaine solution to produce anesthesia but lately I have been using a 6 per cent. solution and in addition, holocain in 2 per cent. strength. The local anesthesia is readily attained but anesthetization of the iris is not so readily produced and calls for longer time in order that one may be positive that complete anesthesia exists.

The corneal incision is made with a narrow Graffe knife. This incision extends in an upward direction and includes about one third of the corneal periphery and its entire extent runs close to the limbus or close behind it. After passing the corneo-scleral junction the edge of the knife is directed into the conjunctiva about two millimeters. The knife is withdrawn and after a minute or two delay the formation of the flap is completed by means of a DeWecker scissors. I feel that in observing this pause or wait that there is less likelihood for blood to fill the anterior chamber and obscure the further operative steps. Prior to the completion of the conjunctival flap the fixation forceps are discarded for the remainder of the operation.

The flap completed, it is elevated and a few drops of cocaine and adrenalin solution are instilled into the eye. In making the iridectomy the Tyrel hook is used in place of the iris forceps.

To open the capsule a horizontal incision is made through its center. The lens is removed by teasing. I have had very little blood to obscure my view in opening the capsule, neither have I had loss of vitreous. Cortical remains are removed by teasing and if this is small in amount it is permitted to remain to be absorbed. Capsule remains are removed with a capsule forcep made from a pattern designed by our chairman. Entanglements of the iris are replaced. A compress of cotton covered with a 1-8000 bichloride ointment maintained by a bandage completes the dressing. A hypodermic of morphine sulphate, grs. 1/6, is administered upon the completion of the operation according to the recommendation of our chairman, thereby relieving many of the discomforts following the operation.

Vitreous loss has been small or nil in the majority of the cases. The instances in which accidents and disappointments occurred are described in the individual case reports. The remaining cases made good recoveries and left

the hospital within ten days. After the elapse of twenty days they were given correcting lenses. These patients had good useful and working vision and with proper fitting lenses their vision ranged from 20/70 to 20/20; reading, Snelling No. 1 to No. 4. Two cases gave vision of 20/20. The ages of the patients varied from 40 to 82 years. The average age was sixty-five.

CASE REPORTS.

CASE 1. Male, aged 82. Nothing unusual marked the operation or the course of healing. No complications occurred and the resultant vision was 20/20. The case is reported on account of the age of the patient.

CASE 2. Female, age 76. This patient was in an enfeebled condition but desirous of having the operation. The usual preparation and care was given for forty-eight hours. During the operation no complication occurred. There was a delayed union of the wound, but no inflammatory condition was observed.

Thirty days following the operation the patient had an attack of influenza and during a severe coughing paroxysm several retinal hemorrhages occurred. Prior to this there was light and form perception and she was able to count fingers at a distance of twelve inches. Complete blindness followed the retinal hemorrhages.

CASE 3. Male, aged 78. After introducing my knife and making its exit on the nasal side, I evidently pricked the eyelid margin. The eye was suddenly squeezed, the lid speculum was forced from between the lids and the knife forced from the entrance point. The patient was sent home and three weeks later a preliminary iridectomy was made; the lens was removed at a later sitting and a resultant vision of 20/70 was secured. The ophthalmoscope revealed choroidal change.

CASES 4, 5, 6, and 7. These patients developed a secondary cataract formation by reason of a web-like curtain that filled the pupillary space. Descision was made in these cases on two or three different occasions and vision was obtained varying from 20/70 to 20/30 with reading vision of Snelling No. 1 to No. 4 by means of properly fitted lenses.

CASES 8, 9 and 10. These patients developed iritis without cyclitic involvement that yielded to treatment with atropia and dionin.

CASE 11. Female, aged 52. During the various steps of the operation everything went along nicely and I was congratulating myself upon the completion of the operation as I began to arrange the dressings for the eye. Suddenly the patient complained of feeling faint; her face became very pale and a cold clammy perspiration was noted. Upon removing the pad from the eye, a quantity of blood escaped from beneath the lids. I retracted the lids and found the vitreous completely washed out of the eyeball. The eye was irrigated with a normal saline solution; a compress and bandage applied; morphine and atropine given hypodermatically and the patient returned to bed.

Panophthalmitis with its long and painful course followed and resulted in phthisis bulbi and blindness.

CASE 12. Female, aged 50. During the course of the operation nothing of importance occurred. There was a delayed healing of the wound as compared with the other cases, but no inflammatory condition of the iris or ciliary body was observed. She left the hospital on the twelfth day. I was called to see her three or four days later and found her suffering from an iritis. The eye was painful,

tender to the touch and the tension was increased. On the following day the eye was filled with blood. Cyclitis developed in connection with the iritic condition and continued with varying degrees of severity for three months. Upon the subsidence of this condition the tension was minus. The colobroma was filled with inflammatory exudates and blindness resulted.

These two cases impressed me with the necessity of taking the blood pressure of each patient before deciding upon operation. It had not been done, prior to operation, in these two patients. Upon the third day following the hemorrhage a pressure reading was made and showed a blood pressure of 210 and 200 respectively with a diastolic and systolic pressure of 160 to 165. Since then I have made it a part of my regular routine to take the pressure in every case.

CASE 13. Male, aged 56. On the tenth day following the operation I advised the patient to send word to his friend to come and take him home. The following day an influenza developed; two days later I found pus in the eye and a discharge from the nose. The culture taken from these discharges revealed the presence of the influenza bacillus.

Panophthalmitis developed, ran its long and painful course and was followed with a resultant phthisis bulbi and blindness.

CASE 14. Female, age 62. Nothing unusual occurred during the course of the operation. Thirty-six hours later the eye became painful. During the night the patient rubbed the eye. On the following morning the eye was painful and inflamed with marked chemosis of the ocular conjunctiva and an abraded condition of the cornea. Iridocyclitis developed and a severe hemorrhage filled the entire anterior chamber. After the subsidence of the irido-cyclitic inflammation a dense thick membrane filled the pupillary arc and a dense leucoma covered the upper third of the cornea. The lower third of the cornea was clear and the iris appeared normal. Three months later an iridotomy was done, with negative results.

CASE 15. Female, age 62. This patient was very nervous. The usual care was administered and she was a hospital resident for three days prior to operation.

After making the corneal incision—which was a little difficult on account of the extreme nervousness of the patient—I waited a reasonable time; instilled more cocaine in the eye and lifted the flap so that the iris could be completely anesthetized. I introduced the hook, caught the iris and was withdrawing it when suddenly the patient squeezed the lid dislodging the speculum and forcing the iris hook out of the eye with the iris body completely attached to the hook. The lens and capsule pushed out and was followed by a mass of vitreous. I closed the eyelids holding them with my finger, and gently massaged the eye globe. After waiting for five minutes and upon opening the lids the vitreous was found back in the eye. The eye was bandaged and a quarter grain of morphia was given. The patient was returned to bed. Her hands and feet were tied and a special nurse placed in attendance. The eye healed rapidly and with properly fitted lenses the patient had a 20/70 vision and reads Snelling No. 4.

CASE 16. Male, aged 52. The conditions in this case were identical to those in case 15. With resultant treatment the patient recovered with 20/40 vision and reading, Snelling No. 4.

It is my opinion that there was a lack of complete anesthesia in these two cases.

In all cases in which there was evidence of cortical remains dionin, five per cent. was used with gratifying results.

To summarize this report: I have cited accidents and complications and in five cases complete loss of vision. While this report does not correspond with some of our present statistics, still the final results are known. It often occurs that when a patient leaves the hospital they are lost track of and they thus become unknown quantities.

A number of these cases, after being refracted and vision found to be 20/50 or 20/40, lacked confidence and self assurance in themselves which by reason of their long period of blindness and their dependency upon an assistant caused the ultimate benefit of the operation to be somewhat disappointing.

Many of the plans proposed for operative technic cannot be carried out by those of us whose cases are few. They can only be performed by skilled and experienced operators. It then remains for those of us who cannot be classified in this skilled class to adhere to that plan of technic that has proven satisfactory in our hands and has resulted in the minimum of failures and the maximum of good.

OCULAR DISORDERS AS SYMPTOMS OF SYSTEMIC DISEASE.

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This paper I present in part for the purpose of correcting the erroneous impression among general practitioners that they do not and can not know anything of eye diseases, and that the practice of ophthalmology is not something apart from the practice of medicine and surgery.

Permit me to say at the outset, in contradiction of this impression, I hope to make some illustrations to prove that in no department of special practice do findings carry greater importance than do the findings of the ophthalmologist in their relation to remote disorders, whether they be applied to determine questionable diagnosis of suspected disease of the gastro-intestinal tract, of the urinary apparatus, of the vascular system, or the more recently physiologically important processes governing the internal secretions, or of suspected intra-cranial lesion; indeed, I shall go so far as to say that in case of the undecided suspicion of a grave disorder of any one of the above named organs or functions, the diagnostician has not quite fulfilled the obligations of a careful complete examination if he has not at least carefully noted any extraordinary subjective ocular symptoms, and if he has not

also some knowledge of any possible changes from the normal in the fundus *oculi*.

In these latter days, when the tendency is to seek for some specific micro-organism or its toxin as the prime cause of most every ultimate symptom complex, no elements of the human economy are attracting more energetic attention than the vascular system and the functions of the internal secretions.

In relation to the former, whether one suspects a beginning arterio-sclerosis or some dyscrasia in the cell elements, long before the analysis of the urinary secretion will give you anything but negative findings, or before your physical examination will indicate any lack of resiliency in the vessels, or any single well marked pathological sign in sound or rhythm of the heart, the ophthalmoscope may positively demonstrate a peri-vasculitis in the fundus *oculi*, or at least a tortuosity or change in the calibre of its vessels. The neurologist and the laryngologist may together be in doubt as to whether a paroxysmal laryngeal spasm be the true laryngeal crisis of a tabes dorsalis, in the absence of a clear history of a luetic infection, or a permanent paralysis of the adductors of the vocal cords, but even at this time, to say nothing of the frequent presence of the Argyll-Robertson symptom, the ophthalmoscope may many times demonstrate an old choroidal atrophy, or organized old sub-retinal exudate, the only demonstrable remnant of the secondary stage.

Indeed, I think one might say, in most parasymphilitic diseases of the cord it would be hard to imagine a case progressed to the degree of marked ataxia or laryngeal spasm, without being able, if no fundus lesion be present, to at least elicit the history of ptosis or temporary motor ocular disturbance. I think perhaps the most important present evolution in internal medicine is that comprehended in the research into the possible physiology of the internal secretion, and their relations to so-called endogenous auto-intoxication, and it is regarding the possible results of this latter condition, also the results of auto-intoxication coming from an improper assimilation of food elements, or inadequate elimination of their end-products, that I wish to call your attention, particularly under the classification of headaches and eye-strains not curable by glasses.

I concede to you that it may sound paradoxical to hear an eye man assert that there are cases of headache and eye-strain which could not be benefited by glasses, but for the present at least I shall be honest with you and admit that I am convinced such is the case. Much fruitful result has been obtained by the application of correct refraction, for the relief of eye-strain due to asymmetry of the refractive media, and insufficiency and irregularity

of the ocular motor muscles; still I find many cases which after my most careful painstaking effort, I am unable to obtain the results to wit:—the greater comfort of the headache patient.

The chronic headache patients are individuals much to be pitied, and not more from the frequent suffering they are compelled often to endure, than from the unfairness of their classification; after brief consideration into cases needing glasses and allowed to choose their own way, often into the hands of the ignorant so called optometrist, or they are classified under the indefinite and unfair and uncharitable name of neurotic, and henceforward evaded as much as possible, or treated diplomatically with medicinal placebo. This class of "headache patients" often come to the oculist complaining of frequent attacks of frontal headache with the extreme sense of straining and tenderness of the eyeballs. They for the most part have malaise and mental depression.

They quite as often as otherwise answer that they are not constipated and have a good appetite, though closer inquiry reveals the fact that the bowels are not healthily active, and one often finds an unhealthy condition of the mouth secretions, offensive breath and other signs of imperfect gastric or intestinal function, and, perhaps, most important in this class of headache patients, one will almost constantly find a marked indican reaction on urinalysis. This class often reveal a scarcely perceptible error of refraction or a very low degree of error.

While I grant you that many cases with low error, particularly of the hyperopic form, compound or simple, are just the ones who reveal muscle insufficiency with consequent motor ocular strain, I am convinced that a large proportion of cases of headache and eye strain, even though a low error with heterophorias be present, have not their origin in this fact but that these ultimate symptoms are the result of a local manifestation of remote toxæmias. They may be the result of endogenous toxins due to changed conditions in the physiological bacteria of the intestinal tract from imperfect elimination, as indicated by indicanuria, or arise from the aberrant metabolism of the body cells themselves.

The gynecologist will perhaps not be surprised at my saying that many of these cases of headache and eye strain, even though a most careful pelvic examination reveals nothing wrong, as to lacerations or lesion, or mal-position of the uterus or its adnexa, still I am convinced that they are due to some toxin or toxins resulting from a departure from the physiological secretion of the ovary. And why not?

Surely the profound changes that obtain in

the whole economy during the more active periodic secretory process of ovulation would warrant one in believing that the intermenstrual ovarian secretion, if varying far from the normal, may well act as an endogenous toxin, quite as important in its remote results as that arising in changed intestinal secretion.

The rhinologist should have a renewed interest in ophthalmology, since several intraorbital and ocular symptoms are entirely local manifestations of grave pathological conditions of the accessory sinuses, and particularly the ethmoidal cells and nasal extremity of the lachrymal apparatus.

To the general surgeon a study of the optic nerve has become a vast field of interest. Retrobulbar neuritis is to him a fixed clinical entity. Unilateral optic neuritis he knows is in many instances a local manifestation; and the relation of optic neuritis to brain tumors has for him an interest equal to that of the ophthalmologist. Moreover, decompression operation for the restoration of vision is a recent achievement which redounds mostly to the glory of the general surgeon.

CASES.

CASE 1. On April 23, 1910 Mrs. G., aged 43, presented herself about ten months after I had previously corrected her refraction for a rather high degree of irregular astigmatism, asking if there might not be some change made in her lenses, as she was suffering severe headache with dizziness and noticed rays floating about her in the air. I made pretty sure of her refraction, and the character of her subjective symptoms led me to suspect a toxic cause. Her urine had a marked indican reaction, and her blood pressure at that time was equal to 180 mm. of mercury. I referred her to a physician who she told me had not seen her for a year and a half. Though I have had no definite report, the patient herself has since told me she was under the physician's care and was much better.

CASE 2. On March 23, 1908 John K., aged 26, presented himself. He was an extraordinarily rugged appearing type of young farmer. Had been well all his life until two months previously, when he noticed sudden blurring of distant vision of his left eye. Specific infection could be excluded. He drank only an occasional glass of beer but used tobacco in excess, and was an inordinate eater. His father died of apoplexy at age of 50. His vision V. R.=20/20; V. L.=6/200. His blood pressure was 140 mm. Ophthalmoscope showed a considerable number of sub-retinal hemorrhages about his disc and macula, but no blood in the vitreus. His urinalysis was negative except for a quite marked indicanuria. He had a polycythemia; Reds 5,750,000—Whites 8,400.

After keeping him for some time under subconjunctival injections of salt solution with potassium iodid internally and a modified diet which excluded nitrogenous elements, I sent him home with mostly dietary instructions. At this time his vision had improved to 20/80.

He returned in three weeks, having had sudden blurring of right eye. Vision reduced to counting fingers at 18 inches. His vitreus was full of blood.

His condition cleared up again.

The important feature is the possible etiology. Heredity may have been a feature, as his father died of apoplexy at 50. His use of tobacco another. But the fact that the man was a gormandizer I think important.

Herter has elucidated quite at length on the effects of foods in epithelial atrophy in the production of intestinal putrefaction, with resulting toxæmias of the blood. The possibility of such means of infection, coupled with the histologic structure of the vessels of the eye ground, namely, that there is in the larger retinal vessels an absence of the tunica media, and in the capillaries only an endothelial coat, would account for the arterio-sclerotic predilection ending in ocular apoplexy.

CASE 3. November 23, 1908, Mrs. M., aged 43, presented herself saying: "Doctor, I have been having very severe headaches lately, with some dizziness, and thought while in the city I would have you test my eyes."

She had a latent hyperopia of .75. In the routine of examining her fundus, the vessels presented a characteristic perivascularitis with a reduction of calibre of arteries.

This led to further investigation, by which I found some edema over the tibia. Urinalysis showed considerable albumen and a few hyalin casts. Pulse 86. Her blood pressure was 215 mm. I advised a saturated solution of potassium iodid to be increased from 10 minims, with dietary instructions, including large amounts of water.

On March 26th, 1909, she returned presenting the following conditions: Pulse 74, urinalysis negative as to albumen and casts, blood pressure reduced to 170 mm., having slight and infrequent headaches.

This woman might easily have drifted into the hands of some jeweler optician, any one of whom would have found urgent need of glasses and would then have passed her on to the realm of uremia or cerebral hemorrhage as a sacrificial monument to Michigan's legislation governing medical practice.

Some one may inquire how I am going to explain this predilection of toxins for a remote area as the ocular motor system and its nerve supply. My conclusions are wholly clinical from clinical observations.

So noted an ophthalmologist as Collins has defined arterio-sclerosis as a general disease with a predilection for certain areas, and in this statement he doubtless referred to its early demonstration in the vessels of the eye ground due to their histologic and anatomic structures.

The local manifestations of a toxemia of remote origin as eye strain, may be influenced by the constant function, voluntary and involuntary, of the ocular motor muscles. This fact, however, would play but a secondary role to the more important anatomic and embryologic facts.

Of the twelve pairs of cranial nerves emanating from the cerebrum, five pairs have their distribution in large part, to the eye or its

auxiliary structures. Recent histology has demonstrated the presence of pupillary as well as visual fibres in the optic nerve, and the presence of an abundance of lymph channels in the eyeball.

Embryologically the formation of the eyeball is initiated by a protrusion of the lateral wall of the primary cerebral vesicles forming the primary optic vesicles. These latter detach themselves more and more from the brain until finally they are connected with it only by the slender peduncle, the eye-stalk. This eye-stalk, originally hollow, becomes a solid mass, the optic nerve, and the external layer of the eye cup, to which it is attached, becomes the retina. Hence the eye-ball may well be termed a highly sensitized end organ of the brain.

Moreover, there are many filaments of the cervical sympathetic distributed to the eye which contribute to the possibility of ample reflex symptoms, all of which, so far as I know, are the most reasonable explanation of a predilection of remote toxæmias for the structures of the eye.

This, however, to the minds of those of you who study your patients' condition by deduction, leaves you with conclusions only as to effect, and gives no clear hint as to etiology.

I suggested previously the possible important role as an etiological factor of endogenous toxins, the result of improper function of excretory organs, or the non-physiological condition of any one of the several internal secretions, and confess that the isolation and detection of definite ptomains or toxins are necessary before one can assume all or any one of these as causes of any symptom complex.

But, because these cases reported, from their ocular symptoms, suggest toxæmia and some of the constitutional symptoms clearly pointed to gastro-intestinal and nephritic infections, I deemed them worthy of consideration from this point of view.

In our own country deScheiwnitz has been foremost in observing the relation of ocular symptoms to remote primary disorders, and has presented some interesting cases based only, however, upon clinical observation.

The earnest research which has been carried on during the last two decades has resulted at this present time in confirming the important part taken by the suprarenals, the thyroid, the thymus, the pituitary body, and the ovaries through their secretory functions, in maintaining or disturbing the healthy metabolism of the body. The earnest effort and the promise of results yet to be obtained are evidenced by the recent reports of Meltzer and others to the Council on Defence of Medical Research of the American Medical Association.

Much of what I have said is but suggestive and prophetic of the solution of many intricate

processes within the body—essential to confirm what are as yet but well grounded suspicions. However, when these suspicions have become established facts, I am sure it will be equally as obligatory upon the ophthalmologist as upon the internist to give them his careful study.

The chief purpose of my paper, however, is to make a plea to the end that these patients, who so often tire the gynecologist and the internist, and in turn the refractionist because he fails to give comfort by his refraction, have more consideration and more careful examination, if possible, to find definite remote causes and to the end that a more intelligent administration be made for their elimination.

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THE CARE AND TREATMENT OF DEEP AND SUPERFICIAL INJURIES OF THE EYEBALL *

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When we stop to consider the great number of eyes which are lost every year—eyes in which some useful degree of vision might have been retained, if they had had, from the beginning, proper care and treatment—it seems to me that the subject of the care and treatment of deep and superficial injuries of the eyeball is of sufficient importance to warrant my bringing it to your attention.

However, it is not my intention to take up your time with an exhaustive discussion of the many forms of injuries to the eyeball and its surrounding tissues, neither do I intend to mention each kind of an injury separately, nor the various forms of treatment that go with these according to the phases which present themselves in each individual case. It is my purpose to deal more in a general way with the care of such injuries as they come to us and the class of injuries with which I shall deal will be contusions of the eyeball, and penetrating wounds—incised and punctured, inflicted with such instruments as knives, scissors, fork prongs, pieces of glass, a pen, wire, chips of metal, farm implements, etc.

CONTUSIONS.

First, as to contusions. What may happen to an eye when a blow is first thrust upon it? The eyeball is a delicate organ, filled with many minute component parts all so completely adjusted that a dim ray of light sets its whole works in motion. This delicate organ can only escape internal and external disturbance by reason of its own elasticity, which is much less than we might at first assume,

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therefore, under disrupting forces the contents must be torn assunder or the walls give way and allow these to escape. The rent will take place at the weakest place in the eyeball, that is, at the junction of the sclera and cornea, and if the blow be severe enough, the lens may be dislocated and escape through the opening under the swollen conjunctival tissues. It is not unusual to find that a wound made with a blunt instrument has become a penetrating wound without our being aware of it, therefore, unless one is careful to examine injured eyes thoroughly, as they first come to you, and unless you are familiar with normal tension, the appearance of the anterior chamber, the position, action and reaction of the iris, you may overlook this on account of the edematous and ecchymotic condition of the tissues.

From the effect of the blow, the iris may be torn either at its sphincter or at its root and hemorrhage take place into the anterior chamber or the vitreous, the latter condition being much more severe and serious than the former. Detachment of the retina, either in part or in its entirety, may follow as the result of the concussion, and the optic nerve be so contused as to produce immediate and total blindness, which, in a certain number of cases, is permanent. The injury to the optic nerve, however, is caused more often by fracture of the orbital wall, or by pressure brought to bear upon it through the edematous condition of the tissues, and by the exudates, rather than through the blow itself, although cases of blindness by concussion are known to occur not infrequently.

Subconjunctival hemorrhage making its appearance several days following a contusion injury of the eye is a diagnostic point of grave and serious import, as it is one of the most trustworthy indications we have of fracture through the anterior fossa of the skull. This form of hemorrhage, therefore, indicates a serious condition, which may be followed by death, so that in every case of injury to the head it is important to note whether conjunctival ecchymosis is present and whether or not it made its appearance at the time of the accident or several days later.

There are also certain diseases of the eye, which upon the first glance appear to be the result of an injury, and one might easily be led to make a wrong diagnosis if the patient gave a history of having received a blow at some previous date. I am now referring to those rheumatic inflammatory conditions of the eye, both acute and chronic, and inherited syphilitic inflammatory conditions seen in young adults. The appearance of such an eye, for a time, is somewhat like that of an ordinary contused eye and unless you are an adept in the diagnosis of the various forms of keratitis,

you may arrive at a wrong diagnosis and consequently be wrong in your treatment.

Ramsey states in the preface of his book, "Eye Injuries" "That promptness and decision of action in emergencies are the best tests of the power and resources of any man, and especially of a medical man." If this be true, it is most applicable in the emergencies arising in the traumatic injuries to the eye and especially those of the penetrating variety, for it is in these cases that the first few hours will often determine whether or not the vision shall be saved and the eye remain a useful one, or whether the injured eye itself and perhaps its fellow will be lost. In the country, emergencies are much more difficult to deal with than in the cities, as it is often impossible to obtain immediately many things that are absolutely necessary, therefore every practitioner should always carry with him an emergency supply for the instant demands of ophthalmic cases, and for this purpose a pocket set of ophthalmic discs will be found very convenient.

PENETRATING INJURIES.

Penetrating injuries of the eyeball are always serious and the chances of preserving a useful eye after a penetrating wound will depend largely upon the site and extent of the injury, the amount of the loss of vitreous, and the risk of septic infection. If the eye is not seen within the first forty-eight hours after the injury, in the great majority of cases it will probably be safer not to attempt any interference with the wound, but leave the case to nature, for within the first few hours an abundant supply of plastic lymph will surround the wound, which is nature's way of sealing, soothing and protecting the injured parts. Unfortunately this may lead to undesirable complications, which may forever destroy an organ that might have been saved.

Prolapse of the iris, secondary glaucoma, iritis, irido-cyclitis, traumatic cataract, distension of the eyeball, anterior and posterior synechiae, detachment of the retina and choroid, siderosis bulbi, atrophy of the eyeball, occlusion of the pupil, phthisis bulbi, anterior and ciliary staphylomata, and that most disastrous complication, infection, which may baffle all surgical precaution and skill, are often the consequence of improper or delayed treatment.

All these and many other complications too numerous to mention, could be entirely avoided or at least partially so, thus leaving good vision where only an impaired one is left, or an eyeball, where an enucleation was unnecessarily performed. These conditions and complications are the ones we are called upon to care for and prevent and the ones we must care for if we are to restore injured eyes to their use-

fulness. It is a pity to watch an eye from day to day in the throes of an irido-cyclitis and to wait for resolution which never comes until blindness and atrophy supervene; or to enucleate every seriously injured eye that we meet, either to cover our ignorance or our bad results. Failure in diagnosing early what has happened to an injured eye and what is taking place during the first few days, has condemned many eyes and relegated them to uselessness.

Surgery in Ophthalmology has kept pace with the progress of surgery in other branches of medicine, and eyes that were once lost are, to-day, saved and all or partial vision preserved, according to the site of the injury, its depth and its extent. Magnetic bodies in the eye do not cause the alarm they formerly did, and for this advance in ophthalmology we are indebted to Haab, Hirschberg and others for their magnets and localizing methods. To Darier, perhaps more than any other ophthalmologist, we owe some of our recent advance in the treatment of eye injuries. The fearlessness with which he injects antiseptic solutions in and about the eyeball has efficiently aborted invading infections, and no doubt, in many cases, prevented the same from occurring.

All penetrating wounds of the eye must be considered septic and this, beside the actual damage inflicted by the missile, must command our early and earnest consideration. The character, position and depth of the wound must necessarily affect the ultimate result. If, for instance, the trauma be in the region of the uvea, the chances for recovery will be more remote, especially if the wound is of any consequence at all. You will remember that it is through this body and through the adjoining structures externally that the blood and lymphatic channels are most abundant and that the avenues for infection are many and the infection will travel from that region deeper and farther to points almost inaccessible. Such injuries must be watched with great care and all precautions for asepsis duly taken lest not only the injured eye be lost, but sympathetic ophthalmia develop at some future time. You will, therefore, see the necessity of being cautious in the prognosis of such cases, more particularly when the injury took place at a time sufficiently prior to the date of the first consultation to have enabled a deep inflammation and perhaps a very menacing septic condition to exist. It is not uncommon to have an eye apparently get well and yet to gradually lose its sight or even shrink within the orbit, for the reasons I have just mentioned.

TREATMENT.

Being unable to go into detail in regard to the surgical and therapeutic measures which the conditions we have previously mentioned

demand, I will briefly state the principal modes of treatment that give the best results and which are in vogue at the present time.

Rest and purgatives first, then antiseptics maintained by the free use of antiseptic irrigations (argol and collargol discs may be used,) injections both deep and superficial of the cyanide of mercury, iodoform, cold applications, actual cautery, injections of normal salt to fill the eyeball if need be when fine silk sutures, wherever needed have been carefully placed—never through the sclera, but always in the superficial layers. Prompt removal of all iritic prolapses when fresh, or at some future time if fast, when the eye has assumed a quiet condition. Removal of traumatic cataract, especially if tension is increased or lagophthalmos or dilation of the eyeball takes place, especially in the young adult and aged, with the use of five per cent solution of dionin, for its physiological action if nothing more. Apply cold in the early stages and preferably heat after the first forty-eight hours, if reaction is greatly involving the iris and uveal tract, and if they have been more or less injured. If a cycloplegic is indicated, use it freely and continuously; if a myotic, follow the same rule, be ever on the alert for sympathetic ophthalmia, and if you suspect it, enucleate promptly. From four to eight weeks after an injury to the eye is the time to watch closely for sympathetic ophthalmia, that being the period when it usually appears. Five weeks after an injury the eye should be pale, if there are no complications. If an eye remains red for such a long time, there is some complication, as for instance, a foreign body in the eye. As the removal of an eyeball is a serious major operation, it should be undertaken only when we are sincerely convinced of its necessity and wisdom. This is not always easy to determine, but if we allow ourselves to be guided by the rules Swanzy formulated, I think we will make fewer mistakes and get better results. These rules, which I have never seen in print, are as follows:

1. I would remove an eye if recovery were hopeless and the onset of irido-cyclitis certain.
2. I would remove an eye if irido-cyclitis had already set in in the exciting eye.
3. I would remove an eye if irido-cyclitis and a foreign body is present in the affected eye, although vision be good in that eye as it is a source of danger to its fellow.
4. I would remove an eye if acute irido-cyclitis, traumatic or idiopathic, were present and vision lost, especially if tender on pressure, as it is a source of danger to its fellow.
5. I would remove an eye if phthisis bulbi were present.
7. I would remove an eye if sympathetic

irritation were present and sight of exciting eye defective and neurosis persistent.

8. I would not remove an eye unless it contained a foreign body which I could not remove, if its vision were good and no inflammation were present.

9. I would not remove an eye if sympathetic ophthalmitis had already appeared should vision of the exciting eye be good.

With these admonitions and perhaps last but not least, gentle care in handling sick eyes, you will get far better results than if the few points I have been able to touch upon in this brief paper had been left unheeded.

PRELIMINARY REPORT OF THE OCULAR DEFECTS OF SCHOOL CHILDREN TWO OR MORE YEARS BELOW GRADE *

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The data that we read about generally concerns the average population—so many have adenoids or enlarged tonsils or poor vision or the conditions are expressed in percentages. Very seldom do we see a certain class of school children studied in detail in regard to any one of these defects. I do not believe that this prevails for want of interest but for want of time and efficient clerical assistants. These assistants are not trained in medicine, not familiar with medical terms and phrases and are subject to the call of principals, teachers and special teachers when the medical man is at work. I have not been favored with the services of a nurse as an assistant though we have one working in the grades as a school nurse. The school curriculum is so crowded and the reports so numerous that special data frequently is lost.

We all agree that the correction of any physical defect of whatever nature is indispensable to the development of a high degree of mental and physical efficiency. The more perfect the ancestry, the higher the standard of the environment, the less do these defects influence the development and the efficiency. There are examples where a moderate degree of poor vision is overcome and a high standard of school work maintained. To substantiate this, I have taken from my case reports the following:

CASE 1. E. S., female, age 15, grade 10-1. Vision 20/70 in both eyes. Physically normal as far as we could tell. No history of illness during childhood. She is one year in advance of grade and her work is in A and B standard.

CASE 2. B. B., female, age 13, grade 9-1, vision

20/60 both eyes. Physically normal and ancestry good. History, negative. Nearly two years in advance of grade age but does standard work of A and B.

By the ophthalmoscope, these are cases of near-sightedness and are able to do near work easily without much strain. Secondly: The good standard of ancestry and the good physique contribute greatly to their ability to compensate for the extra energy required to do a certain amount of work. These are some of the exceptions and we should not be controlled by them.

To suffer throughout childhood from irritation or strain as may be caused by poor vision of the far-sighted type or marked degrees of myopic astigmatism, occasionally, is the beginning of some neurosis and once it is seated relief is remote. When we begin to study the product of poor or degenerate ancestry or a child developed in an unhealthy environment the more do we see the retrograde influence of these defects. The symptoms are very evident. The defective child complains bitterly of the visual defect that a nearly normal child is not conscious of. The one weak point in the method of the examinations of the eyes of school children is that some of the cases that read 20/20 or read normal need glasses badly. We have been instructed that we should not send recommendations to any children that read 20/30. I have spent some time in the examination of those that read 20/30. I found some that needed glasses badly and wrote out recommendations though our regulations do not permit this. Many good results followed. In the examination of these cases I depended upon the complete school, family and physical history. Too, I have attempted the systematic use of the ophthalmoscope for this class of cases but for want of time, dark room, and adequate salary I gave up in despair. With some of the cases of this group I made a desperate effort to get them to my office for examination. In this I was partly successful. Then I resorted to the beneficent influence of the school nurse who went to the home to obtain the parental consent to use drops. (In part successful, and in part failed, the latter more often than the former.) This mydriatic was for the purpose of diagnosis only. The people in our city are not quite ready for this step but with the adoption of an educative propaganda I believe that it will come.

Occasionally we find delinquency in the normal child as a result of a refractive error, but in the defective child this occurs more often. The below-grade child is an abnormal child, but there are cases where the physical condition is normal but on account of the parents moving about often the school record is checkered, and much valuable time is lost and below grade

* Read before the Section on Ophthalmology and Oto-Laryngology of the Michigan State Medical Society at its 48th Annual Meeting held in Flint Sept. 4, 5, 1913. Read before Section on Conservation of Vision at International Congress of School Hygiene, held at Buffalo, New York, Aug. 28, 1913.

is inevitable. Some of the parents arrange their moving propensities to suit the school year. The greater the degree of feeble-mindedness or the lower the grade efficiency the greater the struggle and thus the greater the frequency of the moving. The study of the eye conditions of the below-grade child necessitates the study of the child as a whole and the many factors that may greatly influence the abnormality. The tendency is to limit one's field to the neglect of other fields. I remember very vividly when I first entered private practice I chanced to see a child that had adenoids enlarged tonsils, and poor vision. The latter condition was judged from the fact that the child saw everything small close to its face and the ophthalmoscope showed about 1 and 1/2 diopters of astigmatism. I gave the parents an exhaustive lecture upon the remarkable results obtained from the removal of the tonsils and the adenoids and the correction of the vision. Later to my chagrin I learned that the child was a mongolian imbecile and probably the correction of all these defects would have changed the condition but little. This is another exception. The low grade types are changed but little by the correction of defects. Thus the question arises when we meet such cases, why correct these physical defects in the feeble-minded? The very low-grade feeble-minded child is handicapped mentally and physically and the correction of these defects do not alter hereditary stigmata; and with the high grade feeble-minded and the below-grade child, these are unknown quantities. We never know what training will do for these people, but we do know that to attempt to train a child with these physical defects uncorrected, particularly poor vision, is greatly disadvantageous.

This group of children was made up of 54 males and 43 females. The average grade was the 4th. The highest grade attained was 7-1, the lowest the 1st. The average age was 12 1/2 years. The oldest was 15 and the youngest nine. The average grade being four and the average age 12 1/2 we may consider the group 2 1/2 years below grade. The average vision of the group was 20/30. This is high because there were 16 of the group that read normal or 20/20 yet they complained bitterly of the symptoms of eye strain such as blurred vision, frequent headaches, injection of the sclera, marginal blepharitis, inability to see the black-board without sitting in the front seats and history of styes. Some of these cases were examined by the ophthalmoscope and the parents were interviewed to obtain the consent of the parents to use a mydriatic for diagnosis but we were met with opposition. The one great drawback in our work in my city is the optician. There are several and they are waxing

fat by reason of the credulity of the public. They are licensed in our state to practice but they dare not use a mydriatic. They are not licensed in medicine. This is one of the dark chapters in our statutes. The cases in this group that obtained glasses from an optician are not improved.

Fifty-two out of the group of 97, or 53 1/2 per cent. gave positive tests for visual defects. Some of the percentages given elsewhere range from 42, 45, and 66 per cent. for the defective child. There were but two that read below normal that did not give a history of some of the symptoms of visual disturbances. Their vision was recorded as 20/70 and 20/60 respectively. Those cases free from eye defect had the following conditions that contributed toward their inefficient work: Seventeen had enlarged tonsils and adenoids; one case of tuberculosis; two organic cardiac diseases, one of which resulted from repeated attacks of rheumatism, which was caused no doubt by the diseased tonsils present. No surgical relief would be adopted. Eighteen had some form of degenerative stigmata. A neurologist would have increased this number. Time does not permit detail in this regard. Nine of the eighteen had a visual defect—that is 50 per cent. of those with stigmata of degeneration had poor vision. When a child is under observation, the eyes should be the first point of attack. In this group, the eye defects outnumber all the others combined. The mydriatic would have increased this number to some degree, possibly 15 per cent. There were but two cases of pronounced muscular imbalance, or cross eye. This tends to show that the eye muscles are able to compensate to a remarkable degree the defect of vision. At times I think that some members of the medical profession as well as the public should be better informed upon this subject of imbalance of the ocular muscles. Occasionally, a recommendation will be sent home to consult their family physician about the cross eye and permit him to employ whomsoever he wishes. Instead of sending the case to an ophthalmologist, he says: "Let the eyes alone, the child will outgrow it." A mydriatic with the proper refraction will do a great deal toward establishing balance of the muscles.

There were three cases of corneal scars, one due to injury during childhood and the other two were due to ophthalmia-neonatorum. Most of these children are born under unfavorable circumstances and though preventive measures are adopted they may be infected subsequent to their birth. In Michigan there is a statute that compels all midwives and physicians to use silver nitrate in the eyes of the newborn. Some use one and some a two per cent. solution. I prefer the one per cent. solution and I do not wash out the eye with any solution but

allow the tears to neutralize the excess. One should be sure to instill the solution in the eye and not rub it on the outside of the lid and trust to luck that sufficient amount enters the eye. Of the 64,000 blind persons in the United States 6,000 or 7,000 were needlessly blind because this precaution had not been taken.

In the schools for the blind in Pennsylvania for ten years, the average that was needlessly blind was 33.68 per cent., and in New York the average for ten years was 28.14 per cent. There has been a great revival to stamp out this curse and a great deal has been done but there is yet much more that remains to be accomplished.

In this group there were two cases of the more rare abnormalities—traumatic cataract and hydrophthalmus. In the latter case the vision in the diseased eye was practically nil, in the right eye the vision was reduced to 20/60.

In conclusion I wish to emphasize the improvement of the methods for the examination of the eyes of school children and the more thorough study of eye defects in children below grade. These defects outnumber all other defects combined; that we enact legislation for elimination of the optician unless the standards for this work be markedly increased.

INJURIES TO THE HEAD, AND EAR DISTURBANCES.

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The disturbances on the part of the ear in injuries to the head appears to be a subject which has not received sufficient recognition. It would be impossible to quote the many facts laid down in otologic literature, referring to this common relation, as the time and occasion do not allow it. Kirchner in Schwartz's Hand Book (Vol. 2, page 81) says:

"Yet in most cases an extensive injury of the drum membrane with profuse hemorrhage after a severe injury to the head allows us to draw the conclusion that the base of the skull is fractured. In such cases even the injury to the drum membrane is of secondary importance if the patient is lucky enough to survive, because also the parts of the middle ear and even the labyrinthian structures are very much affected so that the greatest damages to the hearing organ remain after the expiration of an inflammatory process which frequently lasts uncommonly long."

Gradenigo in the same Hand Book (Vol. 2, page 455) speaks of the indirect traumatic injury to the labyrinth. He says that the labyrinth may be affected by a fall or a blow on the head with or without a fracture of the cranium, and claims that even in serious cases the general disturbances caused by the injury disappear,

with the exception of those of the hearing organs and facial nerve. He says: "According to my observations, indirect injury can cause disturbances of the hearing organs and deafness."

Politzer and Urbantschitsch treat the subject extensively and the perusal of their data especially of the pathologic-anatomical findings are of great assistance for the elucidation of the subject matter.

If we consider the anatomy of the labyrinth it can be understood that such a delicate structure is easily subjected to an indirect injury while it is well protected against a direct injury.

Schwartz (2. 732 Hand Book) mentions that the concussion of the skull in chiselling off ivory-hard broad based exostoses is almost regularly followed by an increase in deafness lasting up to three weeks, which deafness can become complete for speech. He claims that this is caused by the severe concussion of the cranium and commotion of the acoustic nerve (nerve deafness by small extravasation in the labyrinth). In a patient of Lucae, whom Schwartz saw, the complete deafness, as the patient reported, disappeared only after a year. I mention this in order to show that comparatively slight blows can cause severe trouble of the ear. Politzer could demonstrate the formation of connective tissue in the labyrinth at an autopsy made in the fifth week after the injury.

I should like to call attention to one point in particular: We know how prevalent the ear disturbance is which goes under the name of chronic catarrhal middle ear affection or chronic adhesive process. When a patient suffering from such a chronic process, accidentally meets with an injury to his head and a rapid decrease in hearing sets in, we must assume, that the rapid decrease in hearing is due to the injury and not to the pre-existing condition which does not lead to such a rapid decrease in hearing. Politzer, (page 276—1908 Text Book) claims: That total deafness in these cases of chronic middle ear catarrh is, as a rule, rare, that it develops either gradually without plain symptoms or suddenly when complicated by an affection of the labyrinth. As the most frequent causes of such permanent or temporary deafness he records, colds, loud sounds, concussions of the skull, mental affection, excesses, cerebral and spinal diseases, syphilis and old age.

Politzer says: "In most cases of injury to the head, the injury is a severe one inasmuch as the patient is disabled for work for a long time, and because as a disturbance of hearing remains permanent."

I think that these experiences should be especially considered when giving an opinion in

court, as injuries to the head are rather frequent occurrences in our age of electric cars, automobiles, etc.

Examples illustrating the subject matter may be covered in some future paper.

In conclusion, I desire to state that the close connection between injuries to the head and disturbances of the ear is far greater than is generally accepted. A more careful observation, undoubtedly, will bear out this assertion. It is not correct to assume that a sudden deafness after an injury to the head is due to a pre-existing chronic middle ear catarrh.

PARACUTIC DEAFNESS—A NEW EXPLANATION AND TREATMENT, WITH REPORT OF TWO CASES *

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Paracutic catarrhal deafness has been one of the dark spots in otology. The explanation of one of the most prominent symptoms, paracusis Willisii, has always been unsatisfactory, as has been the treatment. Many otologists have come to giving a gloomy prognosis when this condition is found and this prognosis has found its way into text books. In common with others I have been guilty of dampening the hopes of patients, but now believe I have a ray of hope to offer.

After exhausting all the literature at my command bearing upon this subject, as well as exhausting the patience of my patients with the old treatment, inflation, massage, etc., I came upon a reprint of Charles J. Heath, F. R. C. S. of London, Eng., during the past winter, and was so impressed with the theory and practice therein outlined that I determined to test it out.

It is not necessary before this audience to review the etiology, course or pathology of catarrhal deafness. Many of these patients suffer from paracusis Willisii; that is they hear better in a noise. This symptom, and its erroneous explanation, has probably lead to the prescribed treatment of the past.

DIAGNOSIS.

It is necessary to differentiate between catarrhal deafness with paracusis, and otosclerosis in which also paracusis may be present. In the latter there is a disturbance, a lowering, of the air and bony conduction of sound with a diminution of hearing through air conduction for high notes. In catarrhal deafness the air conduction for high notes may not be much interfered with, but bony conduction is in-

creased slightly, or not disturbed. In otosclerosis the drum membrane is normal or slightly thinned. In catarrhal deafness this membrane is flabby or retracted, the cone of light at an especially acute angle, and parts of the drum may be bound by adhesions to other structures in the middle ear.

ANATOMY.

It will be remembered that the long arm of the malleus is attached to the center of the drum. The malleus, in the attic, articulates with the incus which by a long process articulates with the stapes. The foot piece of the stapes is attached to the membranous oval window, one of the two apertures of the labyrinth. Thus vibrations are carried from the outside air through the drum, malleus, incus, stapes, and oval window to the labyrinth.

There are also two muscles in the tympanum, the tensor tympani and the stapedius muscle, of opposing action. The tensor tympani muscle arises from the under surface of the petrous bone, and the cartilaginous portion of the eustachian tube. A tendon passes backward to the tympanum, bends sharply outward around the processus cochleariformis, and is inserted into the handle of the malleus near its base. Its action is to draw the handle inward, thereby tensing the drum membrane.

The stapedius muscle arises from the sides of a conical cavity in the inside of the pyramid. Its tendon passes out at the apex to the neck of the stapes. Its action is to tilt the stapes backward, thus tensing the membrane of the oval window, and increasing the intra-labyrinthine pressure.

EXPLANATION OF PARACUSIS.

Various theories have been advanced to explain paracusis: loosening of the joints of the ossicles by vibration of the bones of the head; increased excitability of the terminal nerve filaments of the labyrinth; vibration of the cranial bones and the attending stimulation of nerve filaments and fluid contents of the labyrinth and cerebro-spinal spaces.

Kerrison in his latest book (p. 235) gives two explanations of paracusis Willisii:

"(1) The Tympanic Theory—that with pronounced rigidity of the drum membranes and ossicles the ossicular chain loses the power of responding adequately to the conversational voice, but that when set in motion by such gross sounds as the noise of the street or railway car in motion they regain for a time their responsiveness to the more delicate sound waves involved in conversational speech. (2) The Labyrinthian theory is that in advanced deafness even of tympanic origin the auditory nerve becomes more or less torpid and irresponsive to the voice sounds, but that when stimulated by loud noises it becomes simultaneously more responsive to the delicate and complex sound waves of the conversational voice."

He further says, p. 236:

* Read before the Section on Ophthalmology and Oto-Laryngology of the Michigan State Medical Society at its 48th Annual Meeting held in Flint Sept. 4, 5, 1913.

"Paraculis is seldom met except in advanced stages when the ratio between air and bone condition is reversed—it is probably in some way related to conditions bringing about fixation of the stapes—and to this extent is of some importance as bearing upon the prognosis."

HEATH'S THEORY.

The theory of Heath is that there is undue looseness of the membranes of the drum and oval windows and the articulations of the ossicles, thus interfering with the transference of the more minute sound waves. The stapedius muscle being supplied by filaments of the facial nerve, in common with other muscles so supplied, is more active than common muscles. Heath believes that the stapedius and its opponent the tensor tympani act as an accommodating apparatus in the ear, similar to that of the ciliary muscle in the eye. He believes that these muscles contract as a protective measure whenever sound waves strike the drum. The stapedius being thrown into contraction in the presence of sound waves the membrane of the oval window is slightly tensed, pressure in the labyrinth is increased, and the whole ossicular chain is more or less tense, as well as the drum. Under this condition sound waves are better transmitted and the patient hears better.

According to Heath's belief the sound waves are not ordinarily strong enough to tense the conducting chain sufficient to transfer sound, in the presence of paraculis, but a loud noise or rumble—such as a moving train, does throw the stapedius into sufficient vibration to tense the conducting apparatus and thus allow the passage of sounds impossible to hear otherwise. Heath cites the large number of deaf persons who have been in the habit of holding the alae and forcibly blowing the nose, thus frequently violently distending the tympanic membranes and conducing to the development of deafness. He does not attempt to explain the paraculis present in otosclerosis, unless the same explanation will hold.

RATIONAL TREATMENT.

Whether this theory is tenable or not, it is worthy of trial. Based upon this theory, Heath has attempted to treat the condition by in some way tightening the membranes and joints. If he is correct and the pathology is too much lost motion, the treatment by Politzerization and massage followed for so long is faulty. Heath devised his treatment subsequent to an attempt to close a large perforation by means of blistering fluid, in which he secured the restoration of a considerable degree of hearing.

He makes five solutions of cantharidin in the strength of blistering fluid (B. P.) to 50 per cent. glycerin—one to two, one to four, one

to six, one to eight, and one to ten. Applications of the weaker solution are made direct to the drum every day increasing the strength to get a reaction, then decreasing—but keeping up the inflammatory reaction. The drum should be cleaned each day and care should be taken not to touch the canal, as furunculosis might develop.

After about a fortnight there begins to appear over the drum, a thin whitish film, the drum itself becoming thicker. This film should be removed each day before the application is made. The dilution being made with 50 per cent. glycerin, keeps the drum moist, and a pledget of cotton is placed in the canal to aid in preventing evaporation. The drum is kept in a thickened condition for some time, —two or three months from the onset of treatment, when the treatment is discontinued for a month to allow sclerosing of the drum to take place.

This sclerosing tends to tighten the drum, and all the intratympanic tissues—and hearing gradually improves. Heath advises repeating the process once or twice, and reports a number of marked cases of improvement.

CASE REPORTS.

During the past six months I have followed out this treatment in two cases with, so far, good results, and shall briefly report them. Both are still under observation and are very much encouraged.

CASE 1. Gladys P. aged 14. Referred by Dr. J. J. Holes. She was a small sickly child from birth. As a small girl she had double otitis media following measles. Ears discharged for several months. The discharge reappeared every winter. For the past two or three years her parents have noticed that she was getting quite deaf and that it seemed to be progressing. Nearly two years ago she had tonsils and adenoids removed, which relieved the sore throat, and the discharging ears, but was not followed by improvement in hearing. She is in the fourth grade in school and the teacher has her in the front seat. Even there she was unable to hear the classwork.

Examination. The nose shows a considerable discharge with some crusts—a tendency to engorgement of the turbinates and a moderately crooked septum, but no points of severe contact. The pharynx and the throat are clear. The external auditory canals are quite large, and contain a considerable cerumen. The left drum is strongly retracted, causing the long and short processes to stand out prominently. Inflation does not entirely relieve the retraction although it is improved. The right drum is very irregular, the posterior and inferior quadrants being almost entirely gone. There is a considerable moist puslike accumulation in the ear. It is necessary to shout to make the girl hear. Paraculis Wilisii is present, and a negative Rinne with increased hearing over the mastoid as shown by the hearing tests:

March 17, 1913.

AD	10	62	+	—52	ac	4'	1'
W	S+5	C ² A(90)	C ² M(45)	C A(15)	R	H(2')	V(78)
AS	15	65	4	—40	3"	4'	1.5'

This is a catarrhal form of deafness since the air

conduction seems mostly interfered with. The tests with the whole series of forks might be interesting but were not made.

Treatment. The use of weak cantharidin solution was instituted at once in the left ear, the right being treated by dry cleansing and disinfection with swabs moistened in Andrew's Formula—(glycerine 7 parts and 95% phenol 1 part.) After a few days this ear was dry when cantharidin was used (the 1 to 4 strength) around the edges of the perforation. These applications to the drum were made every day except Sundays from March 17 to May 10. They were resumed June 2 and continued until June 25th when her vacation began.

In the left ear the drum has been thickened and drawn much more tense. In the right ear the drum began to regenerate, but I think I used for a time too strong a solution, for the ear began to discharge quite profusely following an exposure and rhinitis. This promptly subsided under treatment and the drum entirely regenerated being thick for a while, gradually thinning, and retracted somewhat. The child's hearing has improved constantly as testified by her teacher, by the visiting nurse in the schools, by her mother and by the following record of hearing tests:

	April 8	April 22	May 10	June 19	
AD	30	43	44	12'	5'+
W	C ² A (90)	C ² A	W=C ² A	W=C ² A	V (78)
AS	30	35	45	55	V (78)
				12'	5'+

The mother says that she used to have to go up stairs and shake the girl to wake her in the morning, but now she steps to the foot of the stairs and calls her the same as the other children.

CASE 2. Cora C., aged 26. She was perfectly well and normal like other children until 16 years old when she had scarlet fever—with no ear complications that she remembers. Five or six months following scarlet fever she noticed that she was getting deaf. She says she can hear voice, but can not get the articulation. She has a lisp which has developed since she has been deaf. She hears better on a train or street car.

Examination. She is subject to rhinitis, the turbinates congesting easily. Throat negative. The auditory canals are small but clean. The drums are slightly retracted, easily movable with the pneumatic otoscope and no inflammation noticeable. No perforations and no history of discharging ears. However, she says that as a girl she suffered with "catarrh" and has always blown her nose violently, holding the alae, and forcibly inflating the tympani in the process. Eustachian tubes easily inflatable.

She hears only a shout, but has for months been cultivating lip reading. The hearing examinations:

Oct. 5, 1912.

AD	S	35	—27	ac	2"	0
W	S (25)—15	C ² A (90)	C ² M (45)	R'	H (2')	V (78)
AS	9	37	—28	ac	2"	0

Her father became somewhat hard of hearing at 45 and her mother at 40.

Treatment was instituted March 28, 1913 and continued daily with a week's interruption until June 20 when she suffered an attack of gallstones, and has gone to Colorado to recuperate.

In this case I have not used stronger solution than 1 to 6 and very slowly produced the inflammatory reaction. I have not at any time produced the discharge or odor spoken of by Heath. The hearing tests are as follows.

	April 29, '13	May 10	May 27	June 18	July 2
AD	14-16	18	25	31	34
W	C ² A (90) +	C ² A	C ² A	C ² A	C ² A
AS	12-14	17	22	23	24—28
					4'

In both cases the theory was explained to the patient, and no promises of cure made. The

last patient was a stenographer but had to give that up following several months' treatment in Buffalo in an attempt to restore her hearing. She is now dressmaking.

In other cases¹ in which I have instituted this treatment I have not followed it sufficiently long to report, treatment being interrupted for one reason or another. One man aged 65—a boiler maker—and very deaf was taken to the hospital soon after instituting the treatment with rheumatism, followed by erysipelas of the legs. Treatment of his deafness was necessarily stopped. This treatment is long and tedious, and I find most patients will not submit without quite definite promises.

While I am not ready to promise much to patients, I feel that results so far warrant more investigation, and report this work at this time for the twofold purpose of securing the opinion of the section, and possibly stimulating someone else to join in these investigations.

LYMPHANGITIS SIMULATING OTITIS MEDIA *

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The recognition of suppurative otitis media and the accepted treatment by paracentesis are now matters of such common knowledge that any practitioner failing to recognize and properly treat these cases or see that they are properly treated is regarded, to say the least, as considerably below the accepted standard of efficiency. The day of poultices and warm oils containing laudanum and other concoctions is past and as water seeks the lowest level so these practices have gradually been abandoned.

To permit spontaneous rupture of the tympanum is a practice which in the light of our present day knowledge does not reflect credit upon the attending physician. Free paracentesis resulting in ample drainage is practically the last word and keynote in the local management of these cases. With this matter practically settled we are in a position to give our attention to some of the refinements incidental to diagnosis and treatment. The basis of this paper depends upon two cases which are unique in the writer's experience and a search of otological literature furnishes no record of similar cases being described.

In order to make the subject of this article clear the writer desires to make brief reference to the anatomy and physiology of the lymphatic system of the cervical region. This sys-

1. Note, Jan. 3, 1914. I have another case now under treatment showing increase of hearing from 30 to 45 seconds and patient very much encouraged.—W. H.

* Read before the Section on Ophthalmology and Oto-Laryngology of the Michigan State Medical Society at its 48th Annual Meeting held in Flint Sept. 4, 5, 1913.

tem consists of the lymphatic vessels and nodes, the latter commonly referred to as glands. Structurally the vessels are similar to the veins and in the cervical region are classified as the ectal or superficial and the ental or deep lymphatics. The nodes are distributed along the lymphatic channels usually in groups and consist of collections of especially arranged lymphoid tissue. The more important nodes are found lying close to the large blood-vessels. The functions of this system are recognized as being absorbent inasmuch as its chief function is the taking up of fluids from the tissues and conveying them to the venous circulation. The nodes are looked upon as stations for filtering the contents of the lymph vessels, extraneous matter being in this way removed from the lymph.

REGIONS OF PAIN.

The diagnosis of the cases about to be described was largely based upon a careful consideration of the seat of pain which, though general about the cervical and auricular region, was more intense at the locations known to possess lymphatic nodes.

These regions are divided into five separate areas as follows:

1. The occipital lymphatic glands located between the cranial attachment of the trapezius and sternomastoideus and receiving their lymph from the occipital, temporal and parietal regions.

2. The parotid lymphatic glands, ten or twelve in number, located on the surface and in the substance of the parotid salivary gland, the lymphatic vessels communicating with the concha, tragus, membrana tympani and external auditory meatus.

3. Mastoid lymphatic glands several in number situated on the cranial attachment of the sternomastoid muscle, near the mastoid process and base of the ear. Lymph vessels communicating with the parietal, temporal and occipital regions in part, from the helix, antihelix, convex surface and lobule of the ear.

4. Submaxillary lymphatic glands. This chain of glands are several in number and extend from the submaxillary gland to the mandible. The communicating vessels are mostly with the face and mouth there being also an afferent vessel to the parotid lymphatic glands.

5. Ectal cervical lymphatic glands along the external jugular vein between the platysma and sternomastoid muscles. The lymphatic vessels are largely from the superficial cervical tissues:

The ental, or deep glands of the head and neck, are mostly situated along the large blood-vessels and extend from the atlas to the thorax. The lymphatics of the entire head and neck

ultimately traverse this plexus. The lymphatics of the external ear and meatus form three principal groups which we will mention because of their direct bearing on the subject before us.

1. The vessels of the helix and antihelix wind around the free border of the ear to the convex surface where they join the trunks of that surface and uniting into several considerable vessels, they extend to the mastoid lymphatic glands.

2. The lymphatics of the external auditory meatus, the membrana tympani, the concha and tragus, terminate by two or three trunks in the parotid lymphatic glands.

3. The lymphatics of the lobule unite into seven or eight considerable trunks which extend to the caudal or lower mastoid lymphatic glands. As can be readily seen an inflammation of these lymph tissues and vessels so intimately related to external and middle ear would easily give rise to the symptoms characterized by the following cases:

CASE REPORTS.

CASE 1. Dr. S. Age 40. Was consulted by this patient Feb. 3rd, 1913. Patient had had earache since the night before and was suffering acutely at time of examination. Examination showed bulging hyperemic tympanum on right side. Paracentesis under gas anesthesia was immediately performed. Warm douches were ordered and patient was soon free of pain.

Next morning patient was apparently much improved and able to go to his office and attend a number of patients. Drainage from the ear was free and of a serous character. By noon the pain began to return and gradually increased. Morphia hypodermatically was administered with no alleviation of the pain. Hot douches were frequently used in the ear with no results. Hot and cold compresses gave no relief. The discharge was still copious and the character still serous.

The following day there was no abatement of pain, the discharge was still serous.

The next day, third day after paracentesis, the pain had become so much worse that a freer paracentesis was determined upon though the serous discharge was still copious. This was done under gas anesthesia. No improvement followed this second operation. It was noticed that though pain was continuous patient was most comfortable when perfectly quiet.

Pressure at any point around the ear elicited pain especially to the front and below. Pressure in the cervical region below the ear was also painful and was elicited on either superficial or deep pressure. No glandular nodules could be found. Temperature was not high remaining around 101° most of the time. Patient was slightly delirious on two occasions each time following a hypodermic injection of morphia.

Despite everything that was done locally or constitutionally including the use of vaccines the disease continued unabated for about one week, though it was ten days before all symptoms disappeared and the serous discharge ceased. Patient had previously suffered from pneumonia and pleurisy, is thin and anaemic. Discharge from ear showed pure pneumococcus infection.

The salient features in this case were the continued serous discharge not changing to pus and the persistent pain not relieved by free paracentesis. The middle ear appeared to be full of serum at all times no matter how large the incision. The discharge was copious and constantly saturated the dressings.

CASE 2. The second case was that of a child ten years old seen March 1st, suffering from otitis media of left ear. Paracentesis was performed under gas anesthesia followed by temporary relief of pain. Serous discharge came immediately after the incision. The following day pain gradually returned though the discharge did not diminish or change character.

The former case being fresh in my mind the cervical region was carefully examined and found painful to pressure the tenderness extending to a point below the ear over the mastoid and in front of the ear, the latter point being especially sensitive.

This case was much less violent than the first one though running about the same length of time. The discharge continued serous though hardly sufficient at any time to flow from the ear. The incision in the ear drum could be seen at all times and afforded ample drainage. This child was anaemic and apparently suffered from malnutrition.

In both of these cases there seemed to be no areas within or without the ears which were not painful or sensitive to pressure. Both cases dreaded to have any manipulation of the external ear, even the touch of the ear speculum being painful. Likewise both patients found local applications painful and this seemed to be more especially from the pressure rather than from the sensations of heat or cold.

In the writer's opinion the middle ear and membrane tympani were merely the mediums for the escape of the excessive lymph fluid which seemed to fill the tissues. The lymph spaces were engorged with lymph and this interstitial pressure no doubt gave rise to the pain and the extreme sensitiveness of the parts. In other words the patients suffered from mechanical pressure similar to cases of otitis media except that in the latter cases the pressure is all in the tympanic cavity while in lymphangitis the pressure is interstitial. To further elucidate the pain in otitis media is from pressure on the outside of the tissues while in lymphangitis it is from within or interstitial.

The nodes in close proximity to the ear were not swollen through exceedingly sensitive to pressure. Free drainage undoubtedly was responsible for the lack of swelling. The etiology of both these cases is somewhat speculative. They are both anaemic and apparently suffer from malnutrition.

In edema of the lungs of cardiac origin a small dose of morphine often does more good than all the stimulants. It may be the only treatment needed. —*American Journal of Surgery.*

SOME POINTS IN THE TECHNIC OF THE SUBMUCOUS RESECTION

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Since the introduction of the submucous resection a few years ago, its superiority over most of the other operations performed on the septum has become well established.

A well planned and executed operation leaves the parts in such a healthy normal condition, that barring the greater time and greater dexterity required on the part of the operator, it is the operation *par excellence* for any deformity or overgrowth of the septum which requires any operation at all.

Many instruments have been devised and many different plans of operation suggested, but I am firmly of the opinion that simplicity of technic and limitation of the instruments to a few simple ones, for the operators' unaided use, give the best results.

Like a good general, one must be prepared to change one's method of attack, after operations have been begun, owing to unexpected difficulties which may arise.

Provided you have an assistant, trained by yourself, in a long series of operations, there are some instruments you will find of great help, which the assistant will handle; but for most operators a relative or the office girl to hold the head are about all the help we have or can use.

By far the majority of cases can be done through the slit incision of the mucous membrane parallel to the junction of the skin and mucous membrane, carried from about a quarter of an inch of the superior edge of the columnar cartilage down to and a little exterior to the middle line of the nasal floor, on the convex side of the septum.

The round end spade knife of Freer is the best for the purpose of making the initial cut, starting the elevation of the flap, and I find it also the best for incising the cartilage and beginning the dissection of the concave side. The edge needs to be fairly good but it is better not too sharp.

As soon as elevation of the flap is well started, change to the flat, blunt, thin bladed dissector of Freer working rather high up and as far back as you can. With the dissection made high and carried back in this manner you are enabled to reach the points of most difficult dissection from behind and it is my experience that the dissection is much easier from behind forward than in the reverse direction.

A word now as to speculums. I have always found Bosworth's wire spring speculum easiest to use and by some modifications which I have recently had made its usefulness has been greatly multiplied. The improvement con-

sists in a semi-tubular extension of the beak varying by quarters from one inch to two and a quarter in length. Using these beaked specu-



Author's Nasal Speculum.

lums, the membranes are better retracted than any assistant can do it and every point is under your instant control. By their aid the difficult dissection at the edge of the spur ridge is greatly facilitated, and the danger of perforation at this point much lessened.

When the convex side is free and the cartilage perforated with the spade dissector, the flat dissector is started under the concave side, the speculum shifted to the opposite side and the movements of the dissector watched under the membrane.

Division of the cartilage is seldom made at right angles to the surface, but rather in a slanting direction from before backward, thus lessening the chance of puncturing the mucous membrane particularly if your knife is not too sharp. The blunt dissector is inserted through a short incision, relying on extending the cut in the cartilage up and down after the dissection is far enough advanced to insure that no perforation will occur.

The edge of the spur and the corresponding angular depression are the common points for the toughest adhesions, and the dissection is here best done with the short bladed knife which cuts on an edge parallel to the shank.

Four instruments—spring speculum, spade, half spade knives, and blunt dissector—are all that are usually required up to the time when the flaps are thoroughly separated. You are now ready for the very ingenious Ballenger swivel knife for the removal of the cartilage.

Its introduction, without danger of one prong tearing a flap, is often facilitated by making a preliminary cut through the cartilage with the half spade knife. Cases have been reported in which sinking of the bridge has occurred after the submucous operation. If the swivel knife is not carried too high up, too close to the skin of the bridge, there should be no such result. It is easy to know the direction your knife takes if you sight along the shaft, do not enter it too high and are not too ambitious to get all the cartilage away which it is possible to remove. Never less than one-fourth inch in vertical height should always be left when the cut is finished.

Another use for the beak speculum is its introduction under both flaps—one blade passing through the slit in the cartilage, to spread the flaps out of the way of the Ballenger knife, on introduction. As soon as the cartilage is out of the way the blunt dissector should be used to carefully explore to see that no remaining bands are left to tear the flaps when the bone is being removed. As it sometimes happens that you cannot complete the separation of the flap, where the deviation is transverse, without first removing part of the cartilage, it can be left until the anterior cartilage is removed. At this stage the remainder of the dissection is comparatively easy because of the additional room obtained. For the removal of the bone plate and its base I use a straight chisel with its corners ground back, Van Struycken's alligator forceps, and a straight alligator forceps with long jaws.

First I bite through the cartilage and bone, left by the Ballenger knife, a short distance above the floor then again a quarter of an inch higher, and with the grasping forceps wrench out the tongue of bone between with a twisting motion. The removal of the tongue of bone thus made is very easy and there is no danger of the fracture extending any further than the cuts first made. Another cut is made above these and another tongue of bone removed, continuing the same process until you have cleared all the septum it is desired to remove except the triangular crest at the bottom of the septum. This is removed by placing the chisel against its anterior end, driving it straight back with the mallet until well under, when it is twisted on its axis and the ridge fractured off. This is the easiest method of removal and leaves the smoothest base of any of the plans advocated.

When all obstructing parts of the hard septum are removed, the membranous walls are placed in position and held in apposition for twenty-four hours by splints of gauze saturated in sterile vaseline and rolled in bismuth subnitrate. The gauze rolls are in two inch lengths of the diameter of lead and slate pen-

cils. These are packed on both sides of the septum from below upwards, until both nostrils are filled. Their introduction is greatly facilitated by the long beaked speculum, which holds the nostril open, acts as a directing slide to help them into place, and it can be so manipulated as to hold the membranes in proper place during the packing.

A full dose of morphine is sometimes given after the operation because of the discomfort and pain caused by the complete occlusion of the nostrils. Usually all the packing is removed at the end of twenty-four hours and no more is used. Should the soft parts tend to sag or resume their former position I place splints of cork, boiled in paraffine, in one or both nostrils. These are sometimes worn a week or ten days, being removed daily, cleansed and again boiled in the paraffine, which both sterilizes and makes them nonabsorbing. Cork has the advantage of being so easily shaped with a sharp knife to any form and dimensions required.

In closing I have a word as to results. Puncture of both membranes cannot always be avoided by the most carefully executed operation, but if the perforations do not come opposite each other there is usually no perforation left in healing. In spite, however, of the greatest care and a perfect dissection without perforation you are sometimes chagrined, a few days after healing is well under way, to find a slough forming at the point which represents the angular bend of the concave side and the ridge of the convex. I have attributed this to the opposition of two surfaces which often consist of scar tissue and at best are but poorly supplied with nutrient vessels. So long as perforation is confined to the mucous membrane, and none of the cartilage is included in the scar, little harm will follow; inclusion of cartilage leads to crust formation to the great annoyance of the patient.

This paper makes no pretense of describing the full technic of the submucous operation, which has been so much better done by others, but is intended to call attention to some of the procedures and instruments which help to simplify and shorten an operation which is a difficult and tedious one at the best.

PERSONAL EXPERIENCE WITH THE SUBMUCOUS OPERATION *

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The experience upon which the writer bases this paper has been gained from a series of about one hundred cases. Unfortunately, records of the early cases, mostly from the clinic,

* Read before the Section on Ophthalmology and Oto-Laryngology of the Michigan State Medical Society at its 48th Annual Meeting held in Flint Sept. 4, 5, 1913.

were not carefully kept. The opinion of the patient for determining the wisdom of undertaking a submucous operation has been found to be of little or no value. As a rule, the patient is satisfied with his manner of breathing and is usually unaware of how much or how little he is using the nose for that purpose. The patient is questioned in regard to a history of frequent coryzas, of headaches, sinus infections, of diseases suppurative and non-suppurative of the ears, of hay fever, asthma, and in regard to his general health and resistance to infection and fatigue. In those cases where the obstruction is of a medium grade and the history is not such as to decisively favor a submucous operation, the examiner is in some doubt as to what to advise the patient. The nasal chambers are carefully explored before and after they are sprayed with an epinephrin solution, 1-6000 including about one-half per cent. cocaine. The patient is asked to breathe alternately through each side of the nose for a few minutes. Observations of the presence or absence of a stenotic breath sound and of the number of minutes during which the patient can breathe comfortably through each side are helpful in deciding for or against a submucous operation. If the operator has the opportunity to examine the nose two or three times at different intervals, the condition of the turbinates may be more accurately judged and their future condition after the septum is straightened estimated.

The writer believes that the turbinal tissue should be protected against needless removal. A study of the histology of the nasal tissues and of nasal physiology teaches us the importance in the nasal economy of the turbinal tissues and of preserving or securing the normal amount of space between the turbinates and between the turbinates and the septum. We must not expect to win for the patient normally functioning nasal chambers if we have to any extent caused the ciliated columnar epithelium to be replaced by squamous epithelium or by connective tissue and have interfered with the assistance which the capillary action of the normal nasal spaces gives to nasal drainage.

Hypertrophied pathologic turbinate tissue is removed advantageously in a considerable number of cases at the time of the submucous operation, provided that the operator has carefully estimated what the condition of the turbinates will be some months after the submucous operation and has been conservative in the removal of the amount of turbinate tissue. The combination in a single operation of these two procedures upon the septum and the turbinates is of great advantage to the patient. Since a greatly hypertrophied inferior turbinate upon the concave side will permanently obstruct breathing on that side after the obstructions

arising from the septum are corrected, it is most advantageous to remove such a turbinal obstruction and the septum obstruction at the same sitting. Unless done then, it is frequently never accomplished, for the patient dreads the experience of another nasal operation and frequently may lose confidence in the ability of an operator who has failed, by means of a major operation, to give him the comfort of nasal breathing.

It is wise to form the habit, when examining the nose, of searching for the presence of any syphilitic process, or the absence of bone or cartilage in the septum due to previous operations, for absorption due to disease and for any softening of the cartilage. The following case, known to the writer, is doubtless not an uncommon one:

A patient who had undergone one or more sawing-operations on the septum, submitted to a submucous operation at the hands of an inexperienced operator who did an incomplete operation. Later, in another city, an experienced rhinologist advised a submucous operation to which the patient agreed without mentioning her previous nasal experiences. The result of the second submucous was a very large anterior perforation which could probably have been avoided if the operator had placed the incision posterior to the field of the first submucous operation.

The operation in patients much beyond the age of fifty is unadvisable except in cases of chronic progressive middle ear trouble in which one is unable to introduce the eustachian catheter and in which there is a marked reduction and an alteration in the density of the air in the naso-pharynx.

AGE LIMIT.

The oldest case in the author's series is 52 years and the youngest, 12. The youngest had had a complete and well done tonsil and adenoid operation at the age of 9. There was a pronounced anterior deflection to the left involving the anterior columnar cartilage. The nasal breathing on the right side was fair. The operation was urged, for the patient was a day and night mouth-breather and pretubercular in appearance. The operation was done with only a partially satisfactory result because the operator found upon beginning the operation that to completely correct the obstruction would depress the patient's nose at the tip, for the reason that the pronounced deflection was far forward and the cartilage very soft. The hard palate was arched and this phase of the case was referred to an orthodontist. Authorities in rhinology do not agree upon the early age limit at which the submucous operation may be wisely done. One is justified in advising a submucous operation in certain patients under 18 years of age. These cases must be viewed conservatively and studied carefully before advising operation. In the

above cited case the operator would have been wise to have insisted upon delaying the operation for two or three years. A similar operation performed upon a boy of fourteen years of age had gratifying results. Previous to the submucous operation this child had had an incomplete tonsil and adenoid operation. The tonsil stumps were not large or troublesome and were therefore ignored, but the adenoid was removed. The pronounced obstruction consisting of both bone and cartilage situated in the middle region of the left nasal fossa was completely removed submucously and the lower border of the right inferior turbinate was very slightly trimmed. The child gained rapidly in strength and general health. Two years later the nose showed no anomaly in development. Obviously in these youthful cases the operator must preserve a generous amount of cartilage to support the bridge and tip of the nose, for it is a question whether there is not in young subjects a retarded growth of the remaining cartilage.

PAIN.

The author's experience would show that the operation is not painful, though attended by shock and in some cases pronounced shock. For this reason the operation had best be done in a hospital and with the patient in a reclining or semi-upright position. The operation appears to the author to be too severe for a suitable office procedure. If done in the hospital the patient is saved the considerable fatigue incident to undergoing the operation in street clothing, and to the trip home. Rhinologists, by doing so much of their operating in their offices, have accustomed the laity to consider nose operations in general minor ones.

The prospective patient is likely to offer the experience of a friend as a reason for not wishing to go to the hospital. Well-to-do patients who have had the operation done at the hospital have been pleased. The clinic patients without ice and help at home are certainly better provided for at a hospital. It is suggested that rhinologists by a concerted effort to make the submucous operation a hospital operation, will dignify and raise the character of their work. When submucous operations are done in the office the patients should be transferred to their home or to the hospital in a closed vehicle. The average case in this series was incapacitated for work for three or four days. One is much impressed with the great variation in the period of convalescence. The operation is never done during menstruation because of the increased danger of hemorrhage and decreased resistance to pain.

PREPARATION FOR OPERATION.

Before the operation the patients have for the most part been given calcium lactate powders, twenty grains each, four times a day for twenty-four to forty-eight hours and instructed to eat a hearty meal preceding the operation. Recent observations made in the Buffalo General Hospital have shown that the coagulability of the blood is delayed in the patients who have taken calcium lactate over a longer period than twenty-four to forty-eight hours. Patients are invariably asked whether they have ever had any serious bleeding. Every nose and throat operator should be provided with the prepared horse serum now easily procured and be ready to use it hypodermatically or locally when a hemorrhage occurs. Its use as a prophylactic in anticipated cases of hemorrhage is recommended.

THE OPERATION.

The operation is performed without the assistance of a trained nurse, in a chair the back of which may be adjusted at any level desired. If the patient bleeds freely he is kept in the upright position. Reasoning along the line of the *anoci*-association theory of not permitting any conscious or unconscious, harmful stimuli to reach the brain, the patient is not admitted into the operating room before the instruments and the operator are ready to begin. The outside of the nose and the vestibule are washed with soap and water. The inside of the nose is not douched under ordinary circumstances. The hairs of the vestibule seldom require clipping. They assist in keeping the nose clean during its recovery. The strictest asepsis is practiced in respect to the instruments, sponges, dressings and hands of the operator. To anesthetize, the nasal chambers are sprayed with a one-half to one per cent. cocaine in 1-6000 epinephrin solution. After an interval of three or four minutes a fine flexible probe slightly wound with cotton and moistened with a saturated solution of cocaine in 1-1000 epinephrin is gently rubbed over both sides of the septum including all the inequalities of its surfaces. The preliminary spray makes the subsequent swabbing unobjectionable to the patient. The rubbing of the septum with the probe serves a double purpose. It anesthetizes the field and gives the operator a valuable opportunity for a final scrutiny of the obstructions. The swabbing is followed by the injection at several points of a sterile one-half of one per cent. solution of novocain. The injections are made from an ordinary hypodermic syringe armed with a long hemorrhoidal needle which is provided with a protector to be screwed over the point when the needle is not in use. The injection of novocain completes the anesthetizing of the septum and fa-

cilitates the elevation of the mucosa and perichondrium. Novocain may be sterilized and resterilized without losing its activity.

The technic of the submucous operation consists of a great variety of instruments and methods. Descriptions of the operative procedures are not helpful in a paper unaccompanied by lantern slide illustrations. The writer desires to discuss briefly certain points of technic which she has found of value in this series of cases. The Killian specula with blades of three different lengths have proved to be particularly useful. They are serviceable for exposing both the nasal chambers and the intraseptal space. The position, length and form of the initial incision of the mucosa and perichondrium vary with the character and position of the obstructions and the location of the anterior free border of the cartilage which should always be sought. The incisions suggested and emphasized by Hajek, Killian, Freer, and Yankauer each have their place in the submucous technic. The operator should choose the type of incision which combines the least manipulation of the soft tissues with a large enough field to completely remove the obstructions. The employment of the same style of incision for all cases is unscientific. A generous incision, including the floor of the nose, is preferable to a small vertical incision which is attended with considerable bruising, stretching and tearing of the mucosa. The operator should be conscious of his mechanical limitations and in his early experiences tend to choose the larger incisions. In the series under consideration seventy-five per cent. of the cases have been done with a vertical incision. An increased amount of bleeding has been noted in the cases in which the incisions were made along or across the nasal floor. The incisions of the cartilage are made about three millimeters posterior to that of the mucosa. The piercing or wounding of the mucosa is prevented by holding the tip of a finger against the mucosa of the opposite side and by feeling the edge of the knife as the cartilage is cut. The operation is quicker and more satisfactory if the elevation of the mucosa can be completed on both sides before any of the cartilage and bone is removed. An elevator devised by Halle of Berlin has been found especially useful. The blade is curved on the flat, is heavier and stiffer than that of the Freer instrument but lighter than the blade of the Ballenger elevator. The curved dull blade is adapted for passing around the deflections without tearing the mucosa. It is heavy enough to use in bending the resilient cartilage in line with the posterior surface of the obstructions. Because it is smaller than the Ballenger elevator it does not occupy so much space in the operating field. In order to avoid tearing the mucosa it is elevated con-

siderably beyond the portion of the septum to be removed. The Ballenger swivel knife used has a handle bent at a right angle to the blade. Such a handle permits the operator to watch and control the blade during the cutting of the cartilage, because the hand is out of the way. The failure to leave sufficient amount of cartilage at the dorsum and tip of nose is much less likely to occur if the operator uses a knife with such shaped handle. The bony deflections of the ethmoid and vomer are removed with sharp cutting bone forceps. A crotch chisel with rounded ends driven with a mallet is used to loosen obstructions arising from the supramaxillary ridge and heavy pronounced ones arising from the vomer. At the close of the operation the field is carefully cleared of any debris but is not douched. Experience shows that the cases in which the soft tissues have been manipulated the least have the least reactionary swelling of the nose and make the quickest recovery. Few submucous operations can be done well in twenty or thirty minutes. One, two or three sutures of sterile black silk are used to secure the flaps. If there is a posterior tear of more than two or three millimeters it is sutured. A powder of one-half aristol and one half epinephrin powder is blown freely over the surface of both nasal chambers, which are packed as evenly as possible on both sides with one half inch adrenalin tape. If the turbinates on the opposite side from the initial incision of the mucosa have not been operated upon and there has been no hemorrhage, the packing on that side is removed in three or four hours. The nurse or attending member of the family, with instructions, can easily remove this packing with forceps, loaned if necessary for the purpose. The patient is made so much more comfortable by having the packing on the one side removed that one feels rewarded for following out this detail.

POST-OPERATIVE CARE.

Directions are given that the patient is to be placed in bed in an upright position with ice compresses to the bridge of the nose. If there is no bleeding within two or three hours, the ice may be discontinued and the patient lowered to a semi-upright position which had best be maintained for twelve to eighteen hours. One-half grain codein phosphate tablets are prescribed in every case to be given every hour or two for pain and restlessness. The patient is advised to take cold liquids for nourishment during the period of twelve to eighteen hours after the operation. All packing is removed from the nose at the end of twelve to eighteen hours. If there is little bleeding and the patient is not exposed to much dust a thin wafer of sterile absorbent cot-

ton is used for four or five days on the side of the mucosa incision. The stitches are removed in two or three days. The wound heals more rapidly and smoothly if sutures have been used to bring the edges of the mucosa and muco-perichondrium together. If the patient is much annoyed by the crusts and hardened secretions he is allowed to drop into the nose a warm normal salt solution with an ordinary medicine dropper. The use of the salt solution is not encouraged. The patient is warned to blow the nose very gently so as to avoid infection of the middle ear. A powder blower containing the mixture of aristol and epinephrin powder is frequently loaned to a patient who is likely to be particularly exposed to infection, with instructions to blow the powder in lightly once or twice daily for a few days.

OBSERVATIONS.

In seventy-five per cent. of the cases healing has taken place by first intention in four or five days. The healing by granulation has required from ten to fourteen days. In this series of cases a serious hemorrhage has not occurred. It has not been necessary in any case to continue the packing longer than the usual time of twelve to eighteen hours. One case developed an acute otitis media thirty-six hours after the operation. Fortunately the infection was a mild one. Paracentesis was done promptly and the ear discharged for only two or three days. There were no perforations. The obstructions in the early cases were sometimes not completely removed. In some cases a complete operation with a perforation is to be preferred to one which leaves a part of the offending obstructions with the mucosa intact. The incompleteness of some of the early operations was largely due to the operator's desire to complete the work in too short a time.

The results in this series of cases have been most gratifying to both operator and patient. Cases upon which the operation has been performed for mouth breathing and frequent coryzas have been wonderfully benefited. They have gained permanently in weight and appetite and have improved in color and general well-being. Two patients who came for treatment of a chronic laryngitis have during a period of about two years remained free of that affection. The tonsils in these cases were healthy and no adenoids were present.

The nose, naso-pharynx and tonsils of all chronic middle ear cases should promptly be made as perfect as can be for the function of breathing and as free as possible of chronic inflammation and bacterial foci. The author is not satisfied to inflate ear cases without first putting the nose and throat into as nearly a normal condition as possible. Similarly, it

is urged to remove nasal obstructions and points of pressure in hay fever cases in addition to the treatment with cauterizations and serum.

If well done the submucous operation has the merit of restoring normal function to an organ without the destruction of any of its functioning tissue.

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MASTOIDITIS *

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It seems to me a very remarkable lack of appreciation of the gravity and importance of ear suppurations still exist among the general profession. I do not doubt that many will say I am wrong, and down in their hearts acknowledge that I am right when I say this. The majority of physicians still either neglect ear conditions altogether, saying as one doctor told me: "Well, what are we to do? Johnny Smith's mother will tell you that she has had a number of children who had running ears and they got well, and if she don't say that, her neighbors will. And as a matter of fact that is about so." We have either this type to contend with and educate or another, who recognize no incapacity on their part to undertake this most serious operation and with no adequate preparation or knowledge, attempt anything which offers a fee. Now this is not a wail, but a serious realization of conditions as most of us see them.

I feel that it is a large and pertinent duty of every well equipped otologist to help bring about a still better state of affairs, for we who see the grave results—either in late deafness or deaths attributed to typhoid fever, etc., when careful examination may have shown a mastoiditis—owe this duty to mankind. First of all: I believe we ought to be a unit in insisting that every ear suppuration is a serious thing; and, that in all profound infections of the middle ear, that the infection is not limited to the drum cavity but in all likelihood involves the cells of the mastoid as has been shown by Bruhl and Politzer in the dead house any number of times.

We should make it a solemn duty, the neglect of which may lay one open to most severe condemnation, in all cases of the exanthemata to strictly examine the ears at every visit and when there is any sign of bulging or pain which lasts more than a very few hours, to puncture the drum. It is an operation which every well equipped doctor can do and if he can not, he ought to learn or

be willing and anxious to call in some one who can. I believe it is infinitely more important for the family doctor to know these things than to try to practice refraction for it means more to their patients, and refraction is too intricate to be picked up as a side line and too many important questions are at stake, in the proper examination of the eye for it to be treated in this *dilletanti* way. That the spectacle dealer tries to fit eyes is no reason for the educated doctor to simulate his ignorant methods. In this day and age exactness and scientific methods alone should animate us; two wrongs never yet made a right.

I hold, however, that properly the treatment of suppurating ears should be in the hands of the properly equipped. It is our duty to see that the conscientious physician recognize the gravity of every ear suppuration and it is our duty to make bacteriological examination either by smear alone or by culture or preferably by both, of these conditions. We should keep before our own eyes the importance of appreciating whether we are dealing with a capsulated cocci infection or a non-capsulated infection. Under the latter head we are dealing with a staphylococcus or a streptococcus; under the former we have to deal with the streptococcus mucosus and the diplococcus pneumoniae. Infection due to the mucosis is one of the most treacherous and deceptive. The symptoms are so mild, so gradual; at the onset the simulation to a simple ordinary infection is so perfect that even the most watchful and careful doctor may easily be deceived without the assistance of the culture and the smear. The patients may have had a running ear and be recovering apparently, when suddenly a high temperature and pulse accompanied by chills and pain warns us of the dangerous state of affairs. In these cases we often find almost complete melting of the mastoid process and sinus involvement.

A case in point will illustrate:

Miss D., aged 25, came to see me for deafness in the left ear of only a few days' duration; she claims that she has had no pain or suppuration from either ear, has had an attack of "grippe" prior to this. Examination showed the external auditory canal filled with polyps bulging to the orifice. Polyps do not come overnight and it usually argues an old suppuration. Under gas anaesthesia I attempted to remove them and probe for the cause of trouble. It was impossible to remove all polyps without a more radical operation than I was given permission to do and the probe showed deep bone involvement external to the drum. Smears and culture showed streptococcus mucosis. A day or two later a mastoid operation was done and the caries had involved the whole mastoid and all around the facial canal, leaving but a thin wall still protecting it; curetting without injury to the facial was impossible—it was injured and temporary facial paralysis resulted. The wound was treated by the improved Ballance method of Theirsch skin flaps and all suppuration ceased in a few days and the interior was fully epidermatized in two weeks. Hearing was not im-

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terfered with—deafness had only been mechanical, due to blocking of the canal with polyps.

In that form of mastoiditis in which great protrusion of the auricle and swelling of the tissues over the mastoid occurs, we have no difficulty in persuading the family doctor and the family of the necessity of opening the mastoid, and yet this we know to be generally the least dangerous type, for here nature has broken through the barriers and the pus is under the superficial layers. In the other types where the swelling is boggy and edematous and which indicates a deep seated inflammation, with strong possibilities of involving the sinus and the threat of thrombosis with death as the ultimate outcome or cerebellar abscess is present, it is harder to have the conditions appreciated.

Possibly the most important and the least appreciated condition are the cases of chronic suppurations with or without fetid pus. If there is sufficient fetor, we are more likely to get the patients to accept surgical interference and cure. It is distinctly up to us to emphasize at all times the danger of chronic suppurative ears. We should impress upon those who have these patients in their charge, the fact that they are carrying a veritable sword of Damocles hanging over their heads at all times and the fact that many such go through life and live to ripe old age is no refutation of its danger. I am afraid the family doctor is too often indifferent to the loss of function in these cases to say nothing of the above mentioned threat. We who see these cases in their oftentimes hopeless and helpless condition can not but deplore the "let her go" policy. We should not alone insist that bacterial examination be made in all ear suppurations but a watchful lookout for increased mononuclears should be enforced. When the patient becomes septic we then get the increased polymorpho-nuclears. Then we are face to face with the most serious state of affairs. In the matter of prevention: I believe we have pretty well impressed most of the world of the importance of attention to pharynx and fauces.

Another phase of the question has been brought to our attention and that is the condition of the milk supply. The epidemics of septic sore throat—so called—which prevailed in Boston, Baltimore, Chicago and elsewhere has been the fruitful source of general infection manifesting themselves as rheumatism, septic endocarditis and pericarditis and mastoiditis. These have been the subject of investigation by numerous men, among others Drs. Capps and Miller and Dr. E. C. Rosenow of the Rockefeller Institute of Research. They found that the animals were infected with a streptococci inflammation of the mammary glands and that many of the milkers were troubled with

septic sore throat. These conditions prevailed in some of the very best kept dairies in the land. I will not go into the details, they are at the command of any who do not know of them, in the journals and especially in that of the *Journal for Medical Research* of November, 1912. Suffice it to say that they seek to impress upon all the importance of not relying upon anything short of pasteurization of all milk; it seems to me a part of our duty to help the propaganda for pasteurization of milk if we wish to aid humanity in avoiding another prolific source of mastoid suppuration to say nothing of the other infections.

In the question of treatment of mastoiditis and what particular operation should be done, we have had our attention called to various apparent innovations—some good, others questionable.

In the last category, I think we are ready to properly place the so called Heath operation. I am aware it has some defenders, but the leading otologists are convinced that it is simply a variant of the simple and not a good one at that. It was the consensus of opinion at the last International Congress of Otology at Boston last summer that its conception had no sound basis in pathology or practice. From what I have seen of it, it seems to me that in the treatment of acute mastoiditis, it does do this—it certainly makes the after treatment much less painful; the opening which Heath makes, the plugs he uses and the large meatus he creates and the large specula he invented aid in achieving this.

In the radical operation, I have become an ardent advocate of Mr. Charles Ballence's method of large skin grafts and I am certain those who will study out his methods and use them will be gratified. One thing I should like to bring to your attention, in doing this operation and it is a point which he does not mention in his article but told me and others in a personal communication, and that is that one should not be alarmed at the very unpleasant odor which comes from the wound after a few days, and feel that an infection has started and remove the graft. It should be carefully watched and cleansed, as he outlines, and in a few days the odor disappears. The net result of this grafting is a quicker and surer recovery and better hearing.

As it is very important from a clinical standpoint to know if you are dealing with a capsulated organism or not, the question of stain enters very largely—the clinician, if he does not stain his own slides should make it clear to the bacteriologist that he is looking for the mucosus or capsulates streptococci. I am indebted to Dr. Perkins of the Upjohn Laboratory for the following, his permanent stain: Fix a very thin smear from the ear (not from

a culture tube, as you need the blood serum in the exudate) on the slide by *very* gentle heat—it is easy to spoil the smear by too great heat. Apply Fuchsin stain (which should be only half the usual strength) for one minute, the length of time depending on the appearance of the preparation under the microscope. One should therefore make two or three slides ready. Wash off the Fuchsin dilution with solution of copper sulphate 20 per cent.; dry with filter paper and mount in balsam. The organism is a bright pink and the capsula is from a light pink to a golden yellowish pink.

Another excellent stain is the Welch stain. Smear from exudate made very thin, fix by very gentle heat and a few slides not heated at all. Add glacial acetic acid from one-quarter to one-half minute; pour off excess acid; wash off the rest with solution gentian violet for one minute or so; wash this off with 15-20 per cent. solution sodium chloride. This section is to be examined then by simply placing cover glass over sodium solution with no balsam, as this is not a permanent stain. The gentian violet may be the anilin g. v. or the aqueous solution.

ACUTE PHARYNGITIS *

BENTON N. COLVER, M.D.
BATTLE CREEK, MICH.

Acute pharyngitis is one of the more common and less serious affections with which we have to deal. No doubt many more cases are cared for by home remedies than see the family physician or specialist. It is probable that large numbers of simple cases are ignored by the patients and recover spontaneously. This brief discussion, therefore, must find whatever of interest it may, not from the serious nature of its subject, but rather from certain clinical peculiarities.

ETIOLOGY AND INCIDENCE.

When one considers the adjacent structures that afford ideal culture grounds for the air-born bacteria, and the fact that nearly every "acute cold" affects the pharynx at one stage or another of its progress, he is not surprised at the frequency of this inflammation. The most commonly found organisms are the staphylococcus, streptococcus and occasionally the pneumococcus. The Klebs-Loeffler bacillus and other bacteria are sometimes recovered. Other factors in the etiology are: the lowered state of vital resistance incident to acute intestinal disorders or to the chronic intestinal auto-intoxication due to colonic stasis; illogical distribution of clothing which over-protects the trunk and leaves insufficiently clad ankles

and shoulders; exposure of the body unequally to cold by draughts or dampness; the sudden natural inclemencies in the weather and the artificial changes brought about by faulty ventilation and heating; irritants such as tobacco, alcoholic beverages and irritating foods, which beside producing a local irritation, also disturb the vaso-motor tone of the cutaneous and mucosal vessels; lack of attention to the hygiene of the nose, mouth and teeth; the habit of mouth breathing, by permitting the air to strike directly against the pharyngeal mucous membrane which is not adapted to withstand the irritation of air not tempered or moistened by the nasal membrane; noxious and irritating gases in the air; sedentary occupations which tend to lower the vaso-motor tone and weaken the resistance to infections; and any constitutional disorder such as gout or rheumatism.

PATHOLOGY.

The angina simplex passes through the stages of congestion, swelling, dryness, and secretory activity; the follicular involves in addition the adenoid tissue in distinct and localized swellings or nodules. In the first, the mucous membrane appears red and smooth; in the latter, it appears granular. It may involve the posterior wall, the palatal folds, the fauces, the vault or the sinus pyriformis. The uvula may be swollen and edematous. Occasionally the infection may be so intense as to form a pseudo-membrane or superficial ulcer.

SYMPTOMS.

The symptoms vary in intensity but may include a moderate degree of fever, malaise, tickling, dryness, dysphagia, coughing and irritative clearing of the throat, and expectoration of the viscid mucous which may be blood tinged at times, stiffness and tenderness of the neck and aching of the muscles.

COMPLICATIONS.

As already indicated, acute pharyngitis may follow rhinitis, sinusitis, tonsillitis, stomatitis, gingivitis or caries. On the other hand, it may precede rhinitis, laryngitis, bronchitis, tonsillitis, eustachian salpingitis, otitis media or adenitis.

CASE REPORTS.

I wish to discuss particularly a series of cases observed in my practice during the first six months of last year. These cases occurred by months as follows:

January	12
February	23
March	38
April	29
May	19
June	21

* Read before the Section on Ophthalmology and Oto-Laryngology of the Michigan State Medical Society at its 48th Annual Meeting held in Flint Sept. 4, 5, 1913.

Some of these cases, to be sure, were recurrences or second attacks after an interval of a month or upward without symptoms.

The patients ranged in age from two years to over sixty years. The first case was observed probably two weeks before the beginning of the series mentioned. A brief description of it is typical of all, with the variations noted.

The patient complained of a dry stiffness of the throat aggravated by swallowing and worse upon arising, a tenderness of the sides of the neck on light pressure, and a general sense of languor. (In other cases, more usually in children, a fever was present never exceeding 102 degrees in my observation. In a few cases there was quite marked prostration analogous to that of beginning follicular tonsilitis.)

An examination of the nose, mouth, tongue, tonsils, uvula and posterior pharyngeal wall revealed nothing. On inspection of the pharyngeal vault, however, the mucosa was observed to be intensely red, very dry and shining. It seemed almost as if varnished. In most of the cases the process was confined to this area throughout and stopped at this stage though the trouble persisted usually from two to three weeks. In a few cases the fossae in relation to the epiglottis and larynx were similarly involved. (Vallecula, sinus pyriformis and pharyngo-epiglottidean fold.) In some of these latter cases the sinus pyriformis remained as the site of persistence for the longest time.

In a few cases after a definite period of dry inflammation the follicles of the posterior wall became involved—making swollen follicles one-half inch by one-quarter inch in size. In a still less number, there appeared a severe superficial necrosis affecting either the mucosa overlying one or more of these follicles or along the lower border of the posterior pillars. In most of the cases there was adenitis of the deep cervical glands. In all the cases in which bacteriological examinations were made, the prevailing and apparently causative bacterium was the staphylococcus pyogenes aureus.

TREATMENT.

The usual treatment yielded results but slowly. Gargles were obviously ineffectual. The use of argyrol, silver nitrate or oily atomizer solutions did not seem to benefit much. Alternate hot and cold applications to the neck during the day and the heating compress worn during the night seemed to relieve somewhat, especially the tenderness. The most apparent relief to the patient came from the inhalation through the mouth of steam either plain or impregnated with the compound tincture of benzoin. As mentioned above even with active treatment improvement was slow. Often after an interval of one, two or even three days of complete relief, the symptoms would again be

present on the following morning. In none of the cases was recovery attained under two weeks and in some cases it was upward of six weeks, before the patient was free from relapses.

The particular interest of this series of cases depends upon the following facts: (1) They were all primary infections, none of them being evidently preceded by any other nose or throat infection. (2) They were largely free from extension, most of them beginning and ending on the respiratory mucosa of the vault, two or three showing catarrhal tonsilitis and four of them (in children) developing otitis media. (3) They were without secretion, the excessive dryness of the mucosa persisting throughout. (4) The discomfort to the patient and the persistence were out of all proportion to the apparent pathological changes and the bacteriological findings of the laboratory. (5) The epidemicity was high, as practically all the members of infected families, room-mates in the training school dormitories, all the staff in the nose and throat department and others at all closely associated with affected patients sooner or later suffered from the infection.

THE MORLEY EAR-PHONE

The Morley Invisible Ear-Phone, Morley Company, Philadelphia, Pa., is nothing more or less than the old, well-known Toynbee artificial drum-head. It consists of a circular piece of oiled silk about one-quarter inch in diameter, through the center of which a piece of silk thread has been passed, for the purpose of holding the oiled silk in position. A small piece of flexible tubing comes with it to aid in inserting the device in the ear. The indiscriminate sale of a device of this sort, especially at exorbitant prices and under fraudulent claims, is not merely an injury to the purse, but a distinct menace to the health of the deaf (Jour. A. M. A., Nov. 22, 1913, p. 1919).

VEROFORM GERMICIDE OMITTED FROM N. N. R.

Veroform Germicide is described in New and Non-official Remedies, 1913. It is a formaldehyde soap solution, containing 20 per cent. of formaldehyde. The report of the U. S. Public Health Service on commercial disinfectants having shown Veroform Germicide to have a phenol co-efficient of but 0.43, the manufacturers of the preparation were asked to present evidence to justify the term "germicide" in the name and the claim that it has more bactericidal effect than phenol. As the Veroform Co. produced no evidence to substantiate the questioned claims, the Council on Pharmacy and Chemistry voted to omit the preparation from New and Non-official Remedies. (Jour. A. M. A., Nov. 22, 1913, p. 1920.)

MOUTH WASHES.

Recent investigations seem to show that adherence of mucin caused decay of the teeth. So-called antiseptic mouth washes and alkaline washes do not remove this mucin and therefore do not prevent decay of the teeth. The vegetable acids such as fruit juices and diluted vinegar are the most successful agents for the removal of mucin. (Jour. A. M. A., Nov. 8, 1913, p. 1718).

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FEBRUARY.

Editorials

THE CONSERVATION OF VISION.

Conservation of animal life has long received very considerable attention from the national government through the Department of Agriculture as well as through the efforts of State Agricultural Colleges and individuals. Conservation of national resources has also come in for its share of public attention and governmental effort. Attempts at effectiveness and economy have spread like leaven through the various walks of industrial life. In medicine as elsewhere this mighty force has been felt and preventive medicine has made giant strides in many departments from the reduction of infant mortality to the splendid achievements on the Canal Zone.

Ophthalmology has not been negligent of this great movement to prevent rather than cure the ills to which man is heir. Ophthalmologists have, however, recognized that conservation of vision can be advanced only by the co-operation of numbers of workers, many of whom must come from the ranks of those out-

side Ophthalmology. The prevention of blindness used to be the object of effort but this has been supplanted by the wider conception of the conservation of vision as this includes the older term. The American Medical Association has had a committee studying this problem for a number of years and the Russell Sage Foundation has given valuable support to the study of the facts and their causes. The work of illuminating engineers, social workers, philanthropists and others have all been of service.

While the progress of medicine is constantly removing certain cases from the hopeless list, still the application of the facts we already know would go far to conserve the vision of the coming generation and prevent many from spending their lives in darkness or with impaired sight and inefficiency. Clinics can and have been made much less wasteful by a system of following up patients in their homes and making sure that the necessary treatment is being carried out as advised. For example at the Boston Dispensary Eye Clinic only about half the patients advised to wear glasses actually secured them until a trained worker followed up these cases when this percentage was gradually reduced to about five per cent. Cases of iritis have been encouraged to continue treatment until cured and in this way poor results were avoided.

It is recognized that the needs for conserving vision vary with the different sections of the country and what is a burning question in one locality may be of little importance in another. Thus in certain sections of the mountains of Kentucky and among some of the Indian tribes the question of trachoma is an all important one, while in other regions, thanks to the efficient work of the Marine Hospital Service at the various ports of entry, the disease hardly exists. Among some people glaucoma is much more common than elsewhere and the newer operations of sclerectomy will be helpful.

Syphilis being a common cause of impairment of vision, the newer and more effective treatment of this disease tends here to conserve vision. In some regions industrial conditions make injuries to the eyes much more frequent and in many such places new workmen's compensation acts have tended to provide safeguards where possible, and speedy treatment for injured eyes, all tending to reduce this important cause of visual disability.

Ophthalmia neonatorum has received very considerable attention and will doubtless continue to receive more and more until its ravages are very materially curtailed. It has been and still is one of the chief causes of blindness, and Massachusetts has recently demonstrated that it is possible to reduce the ordinary ten per cent. of blindness from this cause to two per cent., a very notable gain as this attacks

individuals at the beginning of what may be a long life.

Illuminating engineers are giving more and more attention to the question of the proper lighting of rooms not only by artificial means but by daylight properly distributed as well. One has only to observe store windows, theaters, libraries and other public places to realize what strides have been made in recent years in this very practical means of conservation of vision. On the other hand it must not be overlooked that the immense popularity and almost indefinite multiplication of the modern moving picture show is a factor which cannot be regarded as tending toward the conservation of eyesight.

There are at present organizations for the conservation of vision in Arkansas, California, Indiana, Kentucky, Massachusetts, New York, New Jersey, Ohio, Pennsylvania and Wisconsin. The Michigan State Medical Society has long had a committee studying the needs of school children and educating the public and the profession in this direction. The Detroit Board of Health has done considerable work through the medical school inspectors and their special clinics. The Children's Free Hospital has a ward devoted entirely to the care of cases of ophthalmia neonatorum. Much, however, remains to be done. Ophthalmia neonatorum should be immediately reported to the health officer and preventive measures much more widely used. School children with defective eyes should be put under exceptionally favorable conditions and allowed to acquire their education with a minimal damage to their ocular apparatus. The initiative for this work should come from the medical profession either on boards of health or organized in local and state societies. To secure the widest success, however, active and earnest co-operation must be had from a large circle of general practitioners, ophthalmologists, social workers, philanthropists, etc. The problem is in the end an educational one and becomes more and more vital as civilization throws an ever increasing burden on the delicate organs of sight.

RAY CONNOR.

OTOLOGY.

Otology has participated in the steady forward march of medicine. No revolutionary and startling progress can be recorded. The situation concerning the surgical treatment of affections of the labyrinth is beginning to become clearer. A valuable opinion, at present, is expressed by Whiting who says: "A symptomatology which shall clearly establish the indications for operative measures in all inflammatory diseases of the labyrinth is, we

fear, a labor of the somewhat distant future, for our acquaintance with labyrinthine conditions is a relatively recent one, and such knowledge as we possess, while very helpful in guiding us to satisfactory conclusions in our more simple cases, still falls short of providing convincing evidence in those dubious and perplexing problems with which private and hospital practice so frequently confront us."

Kerrison, speaking of the indications for labyrinth operation says that there is no field of surgery in which dogmatism is so unwarranted as in the case of the infected labyrinth. Certain conditions, however, which in themselves constitute so grave a menace to the patient's life or his comfort in living constitute a more or less definite call for surgical intervention. Kerrison mentions the following: (1) Labyrinthine infections quickly following surgical injury to the stapes. In such cases surgical intervention should be prompt—before meningeal infection shall have time to take place. (2) Suppurative labyrinthitis complicating acute purulent otitis media and accompanied with high fever, rapid pulse, headache, etc., etc., unless the fever, headache and pulse rate show very early and progressive tendency to subside, prompt drainage of the vestibule would seem to be called for. (3) The acute stage of a suppurative lesion of the labyrinth being passed, the evidences of a latent suppurative labyrinthitis plus symptoms of chronic middle ear supuration calling for relief, would in his opinion constitute a fairly definite indication for operation on the labyrinth. (Whiting says that in cases of chronic purulent otitis media in which the existence of chronic diffuse purulent labyrinthitis is demonstrated, either the labyrinth should be done or none at all). (4) Physical evidence found during the radical operation, of intravestibular suppuration, as shown by pus escaping or granulations protruding from the oval window or from a defect (fistula) in the promontory, or, the presence of a fistula leading to the vestibule through the horizontal canal, such findings would naturally leave no question as to the necessity of surgical intervention.

Uffenorde divides the indications for an operation on the labyrinth in absolute and relative. Absolute indications are: (1) All cases of labyrinthian suppuration with labyrinthogranulations. (2) All cases in which a cholesteatoma has penetrated into the labyrinth. (3) All cases with the formation of empyema in the labyrinth in which pus comes out of a fistula under pressure. (4) Tuberculosis of the labyrinth. The relative indications in which the personal experience and judgment of the surgeon must decide are cases in which the inner ear is totally unexcitable.

Leidler, in Alexander's clinic, comes to the

conclusion that the labyrinth should immediately be opened in the following instances: (1) Each diseased labyrinth caused by suppurative otitis media, acute or chronic, which is combined with labyrinthogen intracranial complication must be opened immediately. The slightest degree of endocranial complications must be considered out-spoken, constant headache localized on the side of the affection. (2) Each labyrinth which on the base of an acute or chronic otitis becomes diseased with the symptoms of an acute diffuse labyrinthitis, i. e., deafness, nystagmus of the third degree to the healthy side and lack of response to the turning and caloric reaction. Such a labyrinth must be opened immediately if the temperature reaches more than 100.4° F., or, if the symptoms last longer than four days with unremitting severity. (3) A labyrinth which is functionally entirely destroyed on account of an acute or chronic otitis and which does not show the conditions mentioned under one and two, must be opened immediately, following an antrotomy radical operation if it shows on any part of its osseous capsule a pathological opening of the peri- or endolymphatic spaces (fistula, cholesteatoma, sequester, tumor, etc.) or continued symptoms of irritation on the part of the static labyrinth (vertigo, nystagmus, vomiting).

The study of suppurative and non-suppurative labyrinthian affections and those of the acoustic nerve has brought otology and neurology in still closer relation to each other than they were before. This cannot surprise us if we consider the construction of the labyrinth and the course of the acoustic nerve. In this connection it may be mentioned that injuries to the head and the resulting affection of the ear have generally not been recognized in their true light. The extent and the gravity of the lesions involving the organ of hearing with their immediate and remote consequences are still demanding a more careful study and consideration. The loss of function as well as the relation to the general health of the injured deserve close and painstaking observation. The writer has tried to call attention to this at present somewhat neglected field, although it is by no means unknown in literature.

The results of Hayne's operation have not been encouraging. Inasmuch as the meninges once infected are much less liable to a restitution compared with other tissues, i. e., the peritoneum, it would seem that even such a heroic interference as the Hayne's operation so distant from the point of initial infection cannot be of much assistance.

The literature of recent date calls attention to the very dangerous infections by the streptococcus mucosus capsulatus with fatal outcome. Graham speaks of the insidiousness and

burrowing power of the group of capsulated bacteria in the acute middle ear infections. Berens reported two cases with no central nervous phenomena until shortly before death. Cutler very aptly remarks that this bacillus does the greatest damage with the least symptoms.

One of the encouraging features of the progress of otology may be found in the fact that the more essential and frequent affections like acute otitis media requiring prompt incision of the drum membrane are becoming more familiar and also the recognition of an acute mastoiditis requiring surgical interference.

The prevention of deafness in its many-side aspects receives more consideration. It is scarcely necessary to repeat that as one of the preventive measures the treatment of the respiratory tract deserves still greater attention—pathological conditions of the nose and adenoids.

I may add, without further comment, that in Budapest middle ear inflammation is included in the weekly report of the health officer.

EMIL AMBERG.

THE PROGRESS OF OTOTOLOGY.

The practice of Otology had its birth during the infancy of medicine in the fifth century B. C. Hippocrates laid down the basic principles of the modern therapeutic treatment of acute and chronic suppurative otitis media and mentioned the surgical treatment of aural polypi. The medical Otologist flourished during the Roman Empire but passed into oblivion with the degeneration of civilization during the Dark Ages. From the beginning of the Renaissance until the last century the field of Otology did not keep pace with the general development of medicine. This may be credited to the fact that the field was not regarded as vital or, perhaps, it was less lucrative than some other. However this may have been, the physiology and pathology of the region remained unexplored and consequently the treatments were medical of the most empirical sort. Surgical procedures for deafness were suggested as early as 1654 by Rolfinck and practiced by Petit in 1674. Trephining the mastoid in suppurative cases was begun about this time and was employed periodically until about 1873 when the modern procedure was proposed. The results of the earlier surgery only brought discredit upon the specialty and strengthened the position of the therapeutic advocates. Only the adventurers attempted surgery.

Modern Otology was born in the early 19th century with the works of Itard, Toynbee and Wilde but hardly kept pace with the advances

of other lines of medical research until the works of men like Gruber, Politzer, Schwartze, Gruener, Blake, Ewald, Barany and Neumann established the physiology, pathology, diagnosis and treatment in the field and placed Otology upon a thoroughly modern scientific basis. Much of the treatment proposed by the earlier of these men was medical but was directed towards a definite etiological factor. With the establishment of definite etiological factors, the Otologist naturally became a Rhinologist and a Laryngologist. Likewise the diagnostic methods developed and the data secured during the last half dozen years are carrying him beyond the temporal bone and into the brain. Today we know that seventy-five per cent. of all brain abscesses are ototic in origin, and hence belong in the field of otology.

Pathological and physiological researches and the development and perfection of surgical methods during the past decade have made constant inroads upon the empirical medical procedures and have slowly and certainly condemned the spray and the swab except in a few isolated cases. These efforts have established Oto-laryngology upon a solid and brilliantly successful surgical basis. No more brilliant procedure crowns surgical achievements than the modern mastoid operations; no surgical interference is executed with more exact and scientific technic nor with more striking and permanent benefit to the patient than the modern submucous resection; no single surgical procedure has added more to the efficiency of the people than the modern adenoid and tonsil operation.

The modern evolution of the Oto-laryngologist from an internist to a surgeon has entirely changed his relation to both physician and patient. The internist has recognized and is meeting the necessity of the intimate diagnostic knowledge of the specialists' field and the future of the Otologist must depend upon his relation to the profession more than upon the impression that he creates with the laity.

FERRIS N. SMITH.

TONSILS AND ADENOIDS.

The readers of *THE JOURNAL* no doubt are somewhat familiar with the voluminous literature on the subject of pharyngeal and lingual lymphoid tissues—Waldeyer's Ring. The last word has not been written concerning this tissue. We see gross evidence of its hyperplasia wherever we go. We find it present in the Esquimaux in the extreme north, and the Malay in the region of the equator. The temperate climate seems to predispose one to its development. The statistics of Gradenigo and

Massie have demonstrated this. The former in the sub-Alpine climate of Turin found these growths present in one of every three children that came to his clinic, while the latter, in the more balmy air of Naples saw only five cases in fifteen years.

There are a great many cases in every community suffering from hypertrophic and diseased lymphoid tissue in this region. The introduction of medical supervision of schools has uncovered a great many cases; part of which have a small amount of lymphoid tissue in this region, but have not and do not experience any trouble; part of which have greatly hypertrophic or diseased tissue in the region in question. The public has been educated about the wide prevalence of this condition and some of the gross defects that result and the pronounced physical and mental changes that ensue subsequently to radical operative procedure. The fact that formerly these cases have not been made more conspicuous is not due to lack of diagnostic skill of the medical attendant but to the fact that he has not aggressively emphasized the due need of operative relief. I will grant even in this day of medical progress and development, there is an occasional medical man who yet believes, that hypertrophied Waldeyer's Ring is indispensable for the maintenance of normal bodily economy, though there is present a marked degree of pathological physiology, both physical and mental. This is not conservatism but ignorance in the fundamentals of medicine. The medical philosophy and scientific logic of the fair-minded conservative contributor upon injudicious destruction of normal anatomical pharyngeal lymphoid tissue must be recognized as the application of sane medical judgment. However, we must not allow this high type of medical judgment to lead us to become over conservative simply for the reason that so many tonsils and adenoids are being destroyed, therefore, surely some normal tissue is being unduly "massacred." Nor should we be greatly alarmed when we discover the presence of tonsils and adenoids, and immediately rush the patient to the operating table. Discreet, critical and discriminate survey of all the details of the case should be applied before operative procedure is advised of which some of the following should be considered:

Nasal-obstruction not due to anterior nasal pathology, accompanied by free nasal discharge or dried crusts. Night-crying and disturbed breathing while asleep. Frequently, children leap out of bed frightened not because of dreams but because of obstructed respiration. Nasal obstruction is usually responsible for high dental arch and mal-occlusion. Orthodontia will not correct or improve these deformities if this hyperplastic tissue is not com-

pletely removed. Some children complain that they cannot swallow with the mouth shut because they cannot breath. These have narrow and shallow chests with more or less degree of the "pigeon breast."

Frequent attacks of sore throat, peritonsillar suppuration, frequent colds and persistent cervical lymphadenitis are significant.

Diseased, submerged, imbedded and adherent tonsils accompanied by palpable cervical lymph glands—operative procedure should always be courageously advised when this symptom-group is present. From these obscure conditions develop arthritis and endocarditis just as well as from a large diseased hypertrophied tonsil that can be easily seen.

Frequent attacks of earache and insidious deafness are sufficient in themselves to demand operative interference. Since enucleation of tonsils and removal of adenoids have been faithfully followed out, mastoid diseases have greatly decreased.

The operation *per se* is enucleation with capsule intact. A method should be developed to suit the individual operator. Cutting off the projecting portions of the tonsil leaves degenerative tissue to perpetuate mild sore throat and systemic absorption. The operator's responsibility is not concluded upon enucleation of the tissue in question. If mal-occlusion is present orthodontic work should be aggressively encouraged. Habit of nasal-breathing must be re-established to replace the habit of mouth-breathing or some of the good results from the throat work will be lost.

There is no phase of the practice of medicine where the skill of the attending physician is tested more than giving the prognosis of any one case. Caution and critical analysis of the case should be made before giving a prognosis as to the post-operative course of tonsils and adenoids. Should the case be a low graded moron the mental stupidity or sluggishness would fail to improve in the same degree that one of the normal mentality would. There are types of the mongolian imbecile that resemble to a marked degree the facial contour and expression of one suffering from hypertrophied tonsils and adenoids, yet throat and nasal pathology is absent.

CLARKE B. FULKERSON.

RADIUM AS A CURE FOR CANCER.

Recently the American Society for the Control of Cancer released for publication a warning against the exploitation of radium as a cure for cancer. This in turn has called forth a protest from workers with radium who proceed to marshal facts showing the good effects of radium in the treatment of certain types of cancer, notably carcinoma of the uterus. If

the Society's publication be carefully read, it will be seen that the article distinctly states that apparently the use of radium has resulted in the cure or at least in the benefit of certain types of cancer such as skin cancer and cancers of the mucous membranes. But it is yet to be seen whether such cures will prove permanent. In the past we have seen various substances, after being injected into malignant growth with apparently good results, lauded as cures for cancer. The cases injected did not stand the test of a five year period without recurrence, so that gradually the cancer cure ceased to be a cure. This does not mean that radium should not be employed and thoroughly tested. Anything and everything should be used which may in the slightest degree prove of benefit in inoperable cases of cancer. But one must be very conservative about advocating the use of radium for cases of cancer which experience has shown can be cured by the knife, if the latter be employed early enough in the course of the disease. There is always the danger that the person with cancer, no matter of what type or stage, will be led to try radium to escape an operation which might have resulted in a cure.

It is difficult for the laity to appreciate the attitude of the medical profession regarding the cure of any disease. Popular writers on cancer accuse surgeons of groping in the dark as regards cancer and urge them to come forward with their figures to show what surgery has been able to accomplish against this most dreaded of diseases. They say that positive statements by medical men of repute are needed to offset the positive lies of the quacks as to what they can do in curing cancer. But the medical profession is not secretive and conservative without good cause. Too often their fondest hopes regarding the cure of disease have been doomed to bitter disappointment. So they say now that they want radium tried out in cancer cases in a careful, scientific manner. If it proves a cure for cancer, good and well. Willingly will they drop their knives and turn to radium. But they are not sure and until they are convinced of the efficiency of this treatment they prefer to warn the people against being too hopeful of the value of this new remedy. There is so much that is absolutely authoritative to teach the people concerning cancer that it is a pity to waste any strength on the propagation of anything in the line of cancer treatment which has not been proved by time.

REUBEN PETERSON.

THE ART OF HUMAN APPROACH.

Many a man wonders why he does not get on in life; he is smart enough, he has a good

education, he has a good start in many ways, but somehow before long he drops by the wayside and he broods in his leisure hours in an endeavor to ascertain why he is not enjoying the success of his neighbor. Everything else being equal—that is professional training, education, environment and personal address—we are of the opinion that the failure to succeed is largely due to the fact that the average individual does not understand what we are pleased to term “The Art of Human Approach.”

Alone, pursuing a cloistered existence, no man is of much value in this life. No successful man lives alone or to himself—if he did he would have starved and failure in place of success would be his epitaph. Your success is dependent upon the associations and the affiliations that you make. The succeeding months and years cause us to take on the color and character of our associations. The vital thing, early in life, is to become associated with the right people.

Someone has said: “A man’s value in life largely depends upon his relations, how he gets articulated with the work about him, and a man’s success in life largely depends upon his ability to make and keep friends.” This thing seems easy for some men. We say of this man or that: Oh, he is a good mixer, he makes friends easily. We believe that a man can acquire the Art of Human Approach if he will only put himself out to do so—it is not an inherited trait. The trouble, however, that often exists is that many of us are diffident and backward; we do not get acquainted readily because we are selfish, self-centered, self-conscious and care more about ourselves than about other people.

We are inclined to want everybody to make advances and come to us; we want everybody to be introduced to us and if people do not come around and make a fuss over us we go away and say that So and So is not very friendly. Such complaints of unsociability rarely emanate from one who is sociable himself. The fellow that has a warm, kindly heart himself is rarely complaining of the unsociability of the other fellow. Wherever the sociable man goes he carries sunshine with him. The fellow that complains is the prematurely old, stiff, stand-around-on-the-edge-of-the-crowd-man, who wonders why everybody else does not come jumping over seats to get a hold of that old, dead flapper of his; who is an iceberg and wonders why people do not embrace him; who won’t put himself out to be friendly to others and make somebody else feel good; who wants everybody to come and pat him on the back and tell people how good he is. He is selfish. That is the real reason. He won’t put himself to the least inconvenience to make friends.

“Certain it is that the man who turns away from stimulus of other men’s thoughts and observations and simply imagines that his recollections of student’s lecture room supplemented with his own necessarily limited experience are sufficient, will find himself elbowed out of the way by the eager crowd of ambitious and more ardent spirits. Don’t stagnate in the back water, but come out into the stream of progress.”

Of course if you intend to be a hermit and live on a desert isle and never come in contact with your kind, it doesn’t make any difference. On the other hand if you desire to be up and with the “fore-rankers” you must cultivate the art of making friends. A certain person when asked the secret of his success in life replied: “Whatever success I have had in life I think I can explain in a single sentence—I had a friend.” The annals of history are crowded with the instances of those who have gotten on because they understood how to make and keep friends. “Many a man fails in life because he has not sense enough to rub a man the right way.”

You, who are wondering why things aren’t breaking a little better; you, who are wondering why your neighbor is forging ahead while you are remaining stationary; you, who are finding yourself on the edge of the crowd, to you we recommend the exhibition of energy sufficient to bring around you a large coterie of friends.

Competition is no longer the motto of the business world. Business men have realized that their success is dependent upon the friends they make. There exists an International Association of business men that have as their motto—“He profits most who serves best.” This is an organization that has for its sole object the bringing into intimate acquaintanceship the business men of the country—to make them friends. Our medical societies present every doctor in Michigan with this same opportunity. If you haven’t grasped this opportunity or have been half-hearted about your affiliation we urge it upon you that you at once make the effort to secure all the benefits obtainable by reason of your membership in your county society. Make the doctors of your community your friends, for by so doing a long step of progress in your career will have been accomplished. No doctor ever attained success that was not affiliated and active in his county society.

DON’T FAIL TO ATTEND THE NEXT
MEETING OF YOUR COUNTY SOCIETY

Editorial Comments

The next—the Forty-ninth Annual Meeting—will be held in Lansing on September 11th and 12th, 1914. The Section Chairmen and Secretaries are already engaged in arranging the programs for their respective sections. The profession of Lansing, whose guests we will be, assure us of their determination to make this meeting the “best ever” in our history. Applications for program assignments should be made to the section secretaries.

This issue is devoted to the publication of the papers that were read in the section on Ophthalmology and Oto-Laryngology during the last annual meeting of our society. They in a measure bear upon subjects that are only of interest to the specialist, still we are sure that the general practitioner will find in them much information that will be of aid in his practice. You are often approached for advice regarding certain diseases that properly belong to the field of the eye, ear, nose, and throat man and in order that you may pass an intelligent as well as reliable opinion it behooves you to remain conversant with the progress that is being made in these special lines. You will secure such information by reading every article in this issue.

As announced last month the Transactions of the Clinical Society of the University of Michigan is omitted in this issue for the reason that the time has heretofore been so short between the date on which these meetings were held and the date when *THE JOURNAL* goes to press that we have barely had time to arrange the articles properly. We therefore decided to allow a month to elapse. In our next issue and regularly thereafter the Clinical Transactions will appear until the summer vacation.

Our members are requested to carefully read the minutes of the January meeting of the Council as published in this issue. In connection therewith you will also find an itemized statement of the sources and disbursements of the funds of the State Society. The detailed statement is published in order that each member may learn and know for what the funds of his society are expended.

One month of 1914 has passed. Have you posted your accounts for the month and mailed your statements? It is one of the absurdities of medical traditions to think that you can be an able and progressive physician and ignore the business aspects of your work—unless you were lucky in having a fortune bequeathed to

you. The financial side of the business of practicing medicine should be studied as well as the professional and scientific side of our work. Are you doing it?

Did you appreciate the January *JOURNAL*? We were able to send you that number with those illustrations and grade of paper by reason of the patronage we have received from our advertisers during the past year. We will be able to send you a similar number each month during 1914 if you will but make it a point to patronize these advertisers who are making it possible for us to send you a better *JOURNAL* each year. Confer your orders upon them and tell them why you are doing so and in addition to receiving courteous and prompt service you will have done your part towards bringing to your desk a better *JOURNAL*. May we depend upon you for this co-operation?

Do you endorse or condemn the division of fees in medical and surgical consultations and work? If you are opposed to this practice will you not place yourself upon public record as being so opposed. Start the movement in your county society; establish a roll of honor. The *JOURNAL* is open for you to declare your position. In response to the comments on this subject in our last issue we have received the following:

“In compliance with your suggestion as regards ‘fee-splitting,’ I will be glad to be enrolled as opposed to the practice in any form.

H. L. Charles, M.D., Paw Paw, Mich.

Are there any others?

The following is a list of the Michigan Fellows of the American College of Surgeons:

Detroit—

Emil Amberg
Max Ballin
John N. Bell
Clark D. Brooks
J. Henry Carstens
Ray Connor
Ernest K. Cullen
Robert W. Gillman
Herbert W. Hewitt
Louis J. Hirschman
Frederick C. Kidner
Daniel Laferte

Howard W. Longyear
Walter P. Manton
Theodore A. McGraw
Wm. F. Metcalf
William H. Morley
Walter R. Parker
Rolland Parmeter
Frederick W. Robbins
B. R. Schenck
Burt R. Shurley
Harry N. Torrey
Frank B. Walker

Grand Rapids—

Robert J. Hutchinson
R. R. Smith

D. Emmett Welsh
Frederick C. Warnhuis

Kalamazoo—

Ralph E. Balch

Ann Arbor—

Roy B. Canfield
C. G. Darling

C. B. G. deNancrede
Reuben Peterson

Big Rapids—

W. T. Dodge

Calumet—

A. I. Lawbaugh

Lansing—

Marshall L. Cushman

Flint—

J. G. R. Manwaring

Saginaw—

C. H. Sample

Potoskey—

Frank C. Witter

All of these Fellows have, by reason of their being admitted to the College of Surgeons, pledged themselves to not practice the division of fees.

President G. L. Kiefer announces the appointment of Dr. Arthur M. Hume of Owosso as member of the Medical Legislative Committee of the American Medical Association, and Dr. Burt R. Shurly, of Detroit, as delegate from Michigan to the annual meeting of the Association of American Medical Colleges to be held in Chicago during the latter part of February.

We have always had a wholesome respect for an automobile engine—so much so that we have been constantly watchful when cranking to prevent “back-fire.” “It will get you sooner or later,” has been handed to us on several occasions, and in place of boasting of our ability to ward off an accident we exercised greater precaution. The “Jinx” was, however, on our trail and eventually landed us.

The facts in brief are: A cold day; motor running idle for some fifteen minutes; we threw in the clutch and “stalled” the engine; the spark was retarded to its full limit; we grasped the crank to “turn her over” when—Presto—myriads of stars appeared in the heavens and a sharp, lancinating pain was felt in our right wrist; a hurried “spurt” was made for the elevator to carry us to our office; recovering from our “nausea” and outbreak of cold sweat and the office girls ignoring the invectives that charged the air, they summoned a surgical friend. Upon his arrival rapid action followed—the X-ray revealed a fractured radius with displaced fragments. A ride to the hospital, ether, awakening in bed with a throbbing wrist encased in splints and then thirty-six hours of constant “ache.”

We are now taking a four or five weeks’ enforced vacation. As a warning to others—Be careful how you crank a heated motor. A red-hot piece of carbon will cause pre-ignition the same as will an advanced spark. Self-starters appeal to us very strongly. A high-powered car has a high-powered “kick”—we know.

It happened on the 13th.

The Minutes and Transactions of the Annual Meeting of the Council

The Annual Meeting of the Council of the Michigan State Medical Society was held in the Wayne County Medical Society Club Building on January 20th, 1914, with the Chairman, W. T. Dodge, presiding and the following Councilors and visitors present:

1st District—A. P. Biddle (Absent by reason of illness.)

2nd District—

3rd District—

4th District—A. H. Rockwell.

5th District—W. J. DuBois.

6th District—Arthur M. Hume.

7th District—W. J. Kay.

8th District—A. L. Seeley.

9th District—B. H. McMullen.

10th District—C. H. Baker.

11th District—W. T. Dodge.

12th District—R. S. Buckland.

13th District—F. C. Witter.

14th District—C. T. Southworth.

President—Guy L. Kiefer,

Treasurer—D. Emmet Welsh.

Secretary—Editor—F. C. Warnshuis.

Chairman Medico-Legal Com.—F. B. Tibbals.

The minutes of the last session of the Council that was held in Flint Sept. 5th, 1913, were approved as read.

The Secretary-Editor submitted his annual report for the year 1913, as follows:

ANNUAL REPORT OF THE SECRETARY-EDITOR

For the Year 1913.

Rendered to the Council, January 20th, 1914.

To the Council and Members of the Michigan State Medical Society:

Gentlemen:

Fully appreciative of the honor bestowed by being so privileged, I herewith respectfully submit to you the annual report of your Secretary-Editor for the period of February 1, 1913 to December 31, 1913, inclusive.

I will endeavor to cover this period of eleven months by the outlining of the direction towards which our efforts have been exerted with but a few recommendations as to our future activities, and thus enable you and our members, to determine individually the verdict that is to be pronounced upon our endeavors and the year's work.

ENTRANCE INTO OFFICE.

About February 1st, 1913, I received the records and property of the Society by express and freight. The absence of a definite statement of the details of the records of office occasioned the request for an audit of the books and records in order that I might have a certified statement of the balances and condition of each account. The report of this audit was submitted to you at your Annual Meeting in Flint on September 4th, 1913. The following is a copy of the auditor's certified report for the year closing December 31, 1913. The original has been filed with the Chairman of your Finance Committee.

AUDITOR'S FINANCIAL REPORT.

Grand Rapids, Mich., Jan. 5, 1914.

To the Council of the Michigan State Medical Society: c/o F. C. Warnshuis, Secretary,
91 Monroe Ave., Grand Rapids, Michigan.

Gentlemen:—

I have just completed the examination of the books and accounts of the Michigan State Medical Society for the year ended December 31, 1913, and am pleased to submit the following exhibits:

EXHIBIT B.	
Savings Account.	
Certificates of Deposit in hands of Treas.	\$2,325.05
EXHIBIT C.	
Certificates of Deposit.	
No. 116, Big Rapids Bank, 4% interest	...\$1,000.00
Grand Rapids Savings Bank, on deposit with Post Master	..... 25.00
Total	..... \$1,025.00

EXHIBIT A.	
Trial Balance December 31st, 1913.	
Bond (a)	.....\$ 2,000.00
Savings (b)	..... 2,325.05
Act. Rec. advertising	..... 512.06
Act. Rec. reprints	..... 109.25
G. R. Savings Bank	..... 1,000.57
Certificates of Deposit (c)	..... 1,025.00
Journal Expense (d)	..... 4,158.15
Secretary Expense (e)	..... 273.69
State Society Expense (f)	..... 1,412.97
Advertising Expense (g)	..... 167.82
Reprint Expense	..... 416.50
Council Expense (h)	..... 285.28
Petty Cash	..... 17.00
General Expense (i)	..... 180.28
Annual Meeting (j)	..... 237.71

	\$14,121.33
Present worth	.....\$ 6,031.67
Dues	..... 2,194.75
Journal Subs.	..... 2,210.65
Defense	..... 182.00
Advertising Sales	..... 3,045.08
Reprint Sales	..... 310.75
Int. Recd.	..... 146.23
Over and short	..... 20

	\$14,121.33

EXHIBIT B.			
Statement Showing Loss and Gain for Year Ended Dec. 31, 1913.			
Expenses	Losses	Receipts	Gains
Journal	\$4,158.15	Membership Dues	\$2,194.75
Society	1,412.97	Journal Subs.	2,210.65
Reprints	416.50	Advertising Sales	3,045.08
Annual Meeting	237.71	Reprint Sales	310.75
Council	285.28	Interest Received	146.23
Secretary	273.69	Over and Short acct.	20
Advertising	167.82		
General Expense	180.28		\$7,907.66
Petty Cash	17.00		7,149.40
	\$7,149.40	Net gain for the year 1913	\$ 758.26

EXHIBIT C.			
Balance Sheet Showing Condition January 1st, 1914.			
Bonds	\$2,000.00	Due Defense Fund for the year 1914	\$ 182.00
Savings acct. (In hands of Treas.)	2,325.05	P. W. 1/1/13	\$6,031.67
Certificates of Dep. (In hands of Treas.)	1,025.00	Gain for the year 1913	758.26
G. R. Savings Bank	1,000.57		<hr/> \$6,789.93
Act. Rec. Advertising	512.06		\$6,971.93
Act. Rec. Reprints	109.25		
	<hr/> \$6,971.93		

The bank account with the G. R. Savings Bank was reconciled as at December 31, 1913, and found correct.

The bonds, savings account and certificates of deposit are in the hands of the Treasurer, D. Emmet Welsh.

(Signed) WALTER H. SHULTUS,
Public Accountant.

EXHIBIT A.	
Bond Account	
Edwards & Chamberlain Hardware Co., Kalamazoo, Mich. 1st Mortgage bonds, Nos. 9, 10, 11, 12, at \$500.00	..\$2,000.00

EXHIBIT D.	
Journal Expense Account.	
February—	
11 Stanton Ptg. Co., postal cards	.....\$ 3.00
11 Miss Taylor, mailing list for P. O.	.. 6.60
11 Postage	..... 4.00
11 F. C. W. Editor's Expense to Chicago	34.55
11 Miss Hill, stenographer	..... 20.00
11 F. C. W. Editor's salary one-half mo.	23.33
21 A. M. A. Printing Feb. Journal	.... 200.55
21 U. S. Clipping Bureau	..... 3.50
21 Schuil Ptg. Co., Adv. contracts	..... 10.50
21 Wilfrid Haughey, postage and mail- ing Jan. Jour.	..... 5.86

28 Wilfrid Haughey, mailing and cartage Feb. Jour.	6.00	13 P. M. Sept. Journal	8.97
28 Miss Hill, stenographer	10.00	13 Addressograph Co., revising mailing list .....	.67
28 Addressograph Co., repair of addressograph	28.82	26 U. S. Press Clipping Bureau	3.50
28 Schuil Ptg. Co., printing statements ..	4.00	26 A. M. A. Printing Sept. Jour.	241.05
28 F. C. W. Editor's salary Feb.	41.67	26 F. C. W. Salary Aug. and Sept.	83.33
March—		October—	
12 W. Haughey, salary editor January .	25.00	10 P. M. October Journal	10.24
12 Postmaster, postage March Jour.	6.90	10 Tradesman Co., printing Oct. Jour. ..	355.71
12 F. C. W., expense Detroit	15.53	31 Miss Taylor, stenographer	20.00
20 Miss Hill, stenographer	20.00	31 F. C. W., salary for October	41.83
20 U. S. Press Clipping Bureau	3.50	31 F. C. W., expense to Chicago	14.75
20 Printers Ink Co., subscription	2.00	31 West's Drug Store, rent	7.50
20 A. M. A. Printing Jan. and March Journals	417.35	31 Miss Taylor, stenographer	20.00
27 Addressograph Co., revising mail. list	3.45	November—	
27 P. M., Battle Creek. Balance unpaid postage for 1912	9.44	13 U. S. Clipping Bureau	3.50
27 F. C. W. Editor salary March	41.67	13 Western Union Teleg. Co. ....	.70
April—		13 Columbia Trans. Co., Freight and cartage	23.66
5 A. M. A. April Journal	216.60	13 P. M., Nov. Journal	11.27
12 P. M. Second class postage	8.64	13 Tradesman Co., November Journal ..	318.60
12 Postage, first class and correspondence	10.00	13 Miss Taylor, stenographer	20.00
12 Miss Hill, stenographer	10.00	13 F. C. W., salary November	41.66
28 West's Drug Store, postage	10.00	December—	
28 F. C. W. Editor salary April	41.67	24 Tradesman Co., December Journal ..	318.16
28 Miss Hill, stenographer	10.00	24 Addressograph Co. ....	.90
28 U. S. Press Clipping Bureau	3.50	24 P. M. December Journal	10.78
28 Addressograph Co. Change of mailing list .....	.58	24 U. S. Press Clipping Bureau, Bal. act., 1913	10.50
May—		24 West's Drug Store, December rent ..	15.00
15 U. S. Press Clipping Bureau	3.50	24 Miss Taylor, stenographer, Jan. 1st ..	17.50
15 Ellis Pub. Co. Binding 1912 Journals	18.00	24 F. C. W., December salary	41.66
15 A. M. A. Printing May Journal	243.62	24 F. C. W., postage	3.75
15 Miss Hill, stenographer	10.00	Total	\$4,158.15
21 Western Union Telegraph Co.	1.96	EXHIBIT E.	
21 P. M. May Journals	8.86	Secretary's Expense.	
21 West's Drug Store, postage	5.00	Feb. 11—F. C. W., Secy. Expense Chicago \$	13.80
June—		Mar. 12—W. Haughey, exp. acct. Jan.	69.87
5 A. M. A. June Journal	206.58	Mar. 12—F. C. W., Genesee County trip ..	9.38
5 Miss Hill, stenographer	10.00	Apr. 28—F. C. W., Exp. Berrien and Me- costa Co.	16.28
5 F. C. W., May salary	41.67	June 5—F. C. W., A. M. A. meeting	72.60
5 P. M., June Journal	8.11	July 14—F. C. W., Lapeer meeting	7.48
13 Miss Hill, stenographer	10.00	Aug. 2—F. C. W., Chicago expense	14.50
30 Miss Hill, stenographer	10.00	Aug. 13—F. C. W., Upper Pen. meeting ..	47.17
30 F. C. W. Editor salary June	41.67	Sept. 26—Secretary's office expenses	8.95
July—		Oct. 31—F. C. W., Ottawa and Montcalm meetings	4.86
14 U. S. Press Clipping Bureau	3.50	Dec. 24—F. C. W., Tri-County meeting ..	8.80
14 Columbia Transfer Co. Freight and cartage	17.04	Total	\$ 273.69
14 A. M. A. Printing July Journal	209.12	EXHIBIT F.	
14 P. M. Postage July Journal	6.83	State Society Expense.	
14 Addressograph Co., revising mailing list	1.72	February—	
14 Miss Hill, stenographer	10.00	11 F. C. W., Secy. Supplies	\$.73
August—		11 Miss Hill, stenographer	20.00
2 F. C. W. Editor salary July	41.66	11 J. S. Crosby Co., Secy. and Treas. Bonds	15.00
2 Miss Hill, stenographer	10.00	11 Fox Typewriter Co.	1.00
2 West's Drug Store, postage	6.00	11 F. C. W., postage	4.00
2 A. M. A. Printing Aug. Journal	235.48	11 F. C. W., salary	23.33
13 P. M. Aug. Journal	11.11	12 Tisch-Hine Co., supplies	44.66
13 Mich. Telephone Co., long dist.	11.30	12 West's Drug Store, postage	5.00
16 Miss Hill, stenographer	10.00	21 Schuil Ptg. Co., membership cards ..	14.75
16 West's Drug Store, postage	5.00	28 Miss Hill, stenographer	10.00
13 Addressograph Co., addresses	1.02	28 Tisch-Hine Co., stationery	13.20
September—		28 F. C. W., February salary	41.67
1 Miss Hill, stenographer	10.00	28 Fox Typewriter Co., exchange typewriters	25.00
11 Miss Taylor, stenographer	10.00		
11 West's Drug Store, rent 2/1/13 to 9/1/13	52.50		
13 U. S. Press Clipping Bureau	3.50		

March—

12 W. Haughey, January salary	25.00
12 West's Drug Store, postage	20.00
20 Miss Hill, stenographer	20.00
20 J. S. Crosby Co., Ins. on office equip.	15.00
27 Tisch-Hine Co., membership ledgers .	157.44
31 G. R. Typewriting Co., form letters ..	1.25
31 F. C. W., March salary	41.67

April—

12 Miss Hill, stenographer	10.00
12 Petty cash account	5.00
28 F. C. W., salary April	41.67
28 Miss Hill, stenographer	10.00
28 Mich. State Telephone Co., long dist.	1.35
28 Columbia Transfer Co., freight	13.19
28 Tisch-Hine Co., set of books	21.56
28 L. R. Taylor, typewritten membership list	6.00

May—

15 Miss Hill, stenographer	10.00
21 Mich. Telephone Co., long dist.	4.15
21 Postal Teleg. Co.	3.19
21 West's Drug Store, postage	5.00
23 A. M. Hume, legislative com. exp. ..	13.27

June—

5 Miss Hill, stenographer	10.00
5 F. C. W., May salary	41.67
5 Tisch-Hine Co., supplies	2.10
5 West's Drug Store, postage	5.00
16 Miss Hill, stenographer	10.00
30 Miss Hill, stenographer	10.00
30 West's Drug Store, postage	5.00
30 F. C. W., salary June	41.67

July—

14 Powers & Tyson, postal cards	3.90
14 Tisch-Hine Co., supplies	9.00
14 West's Drug Store, supplies	4.50
15 Miss Hill, stenographer	10.00
15 West's Drug Store, postage	10.00

August—

2 F. C. W., July salary	41.67
2 Miss Hill, stenographer	10.00
2 West's Drug Store, postage	6.00
13 Tisch-Hine Co., supplies	1.25
16 Miss Hill, stenographer	10.00

September—

1 Miss Hill, stenographer	10.00
11 Miss Taylor, stenographer	10.00
11 West's Drug Store, rent	52.50
26 Dr. Rutherford, public health com. ...	13.00
26 F. C. W. Aug. and Sept. salary	83.33

October—

7 West's Drug Store, postage	3.81
10 West's Drug Store, rent, Aug.	15.00
10 Tisch-Hine Co., supplies 1914	43.35
10 Miss Taylor stenographer	20.00
31 Miss Taylor, stenographer	20.00
31 F. C. W., salary October	41.83
31 West's Drug Store, postage	10.00
31 West's Drug Store, rent	7.50

November—

13 Schuil Ptg. Co., envelopes	4.25
25 Miss Taylor, stenographer	20.00
25 West's Drug Store, postage	10.00
25 F. C. W., salary	41.67

December—

24 Tradesman Co., envelopes	12.95
24 Postal Teleg. Co.	1.35
24 Stationery, section oph., oto., laryn. ..	5.50
24 Tisch-Hine Co., 1914 stationery	52.02
24 Miss Taylor, stenographer	17.50
24 F. C. W., December salary	41.67

Total \$1,412.97

EXHIBIT G.

Advertising Expense.

March 5—W. Haughey, commissions	\$ 30.05
March 25—Robt. Currier, Chicago	6.86
May 12—Robt. Currier, Chicago	5.80
May 23—W. Haughey	77.27
Sept. 1—D'Arcy Co., St. Louis	12.49
Nov. 5—W. Haughey, bal. commission ..	35.35

Total \$ 167.82

EXHIBIT H.

Council Expense Account.

Feb. 11—W. T. Dodge, expense	\$ 17.65
Feb. 11—C. H. Baker, expense	19.11
March 1—W. Haughey expense, Jan., 1912	
Meeting	42.12
March 1—W. Haughey, Secy. Council	25.00
March 1—Anna Haughey, stenographer	
Council	25.00
May 23—A. M. Hume, Councilor expense .	7.07
Sept. 10—Miss Taylor, stenographer Coun.	25.00
Sept. 10—County Secretaries' dinner	37.50
Sept. 13—Auditor	68.50
Sept. 26—Eifert File Case	7.84
Oct. 10—A. H. Rockwell, expense	10.49

Total \$ 285.28

EXHIBIT I.

General Expense.

Feb. 1—Columbia Transfer Co., cartage ..\$	3.65
Feb. 1—St. Joseph Co., bank exchange ....	.10
Feb. 11—Expense Ex-treas. Stone	2.94
Feb. 11—F. C. W. express and freight,	
trans. office	33.99
Feb. 11—F. C. W., petty cash	5.00
Feb. 20—F. C. W. express and freight,	
trans. office	9.60
Feb. 21—F. C. W., petty cash	5.00
Sept. 26—W. Haughey, office rent 1912 ..	120.00

Total \$ 180.28

EXHIBIT J.

Annual Meeting Expense.

Aug. 2—Schuil Printing Co., registration	
blanks	\$ 3.75
Aug. 13—H. B. Morse, section Secy. exp.	5.00
Aug. 13—Lawrence Printing Co., Am-	
berg's Committee	4.25
Sept. 11—F. C. W., exp. annual meeting ..	26.36
Sept. 11—Dresden Hotel, invited guests'	
hotel bill	38.45
Sept. 11—Grand Rapids Typewriting Co.,	
membership list Reg. Bureau	5.50
Oct. 10—Harry Demorest, stenographer,	
Flint	122.50

Total \$ 237.71

EXHIBIT K.

Interest Received.

June 30—Chamberlain Hdw. Co., bonds ..\$	50.00
July 31—Battle Creek & Kalamazoo Sav.	
Banks	46.23
Aug. 21—Certificate of Deposit, Peoples	
Bank	30.00
Sept.—Certificate of Deposit, Big Rapids	
Bank	20.00

Total \$ 146.23

Note.—Interest on funds in hands of the Treasurer and on bonds for last half of 1913 not received at the time of audit.

EXHIBIT L.

Explanation of Present Worth. at the Commence-
ment of the Year.

Bond acct.	\$2,000.00
Savings Acct., Kalamazoo Bank	1,772.77
Savings Acct., Battle Creek	552.28
Checking Acct., Grand Rapids	1,292.76
Accts. Receivable	364.36
Accts. Receivable Reprints	49.50
Total	\$6,031.67

The above reveals in cold figures the condition of our finances and the source and disbursements of our funds during the past year. A study of these figures lead us to the following deductions: Our net profit for the year is \$758.26. Our present worth on December 31, 1912 was, as per the report rendered to you, \$5,427.46. Our present worth on December 31, 1913 is \$6,789.93. This in reality then gives us a profit for the year of \$1,362.47 in place of the reported profit of \$758.26 as contained in the auditor's report. The explanation of this apparent discrepancy is as follows: When we opened our new set of books during February, the total resources turned over amounted to \$6,031.66, containing as it did receipts from bills receivable and interest not incorporated in the report rendered on December 31, 1912. We consequently entered this total amount as an exhibit of the present worth of the Society at the time our new books were opened some five weeks after the commencement of this fiscal year, and have based our profit and loss computations on these figures. Our profit for the year then is, as stated, \$1,362.47 with all bills paid, and the Society's net worth on Dec. 31, 1913 was \$6,789.93. This does not include the interest on our investments for the last six months of the year, and which, because they were not collectable until January 1st, 1914, do not appear in our statement.

It is also but proper that we make mention of the extraordinary expenses incurred during the year by reason of the installing of a complete new system of records and accounting. We believe that

this has been a profitable investment for now our records are beyond criticism and are in such shape that every penny of receipts and disbursements are accurately accounted for and may be balanced in a very few moments. The expense of transferring the property of the Society from Battle Creek to Grand Rapids is revealed in the exhibit given below and is properly classified as an extraordinary expense, as are also the unpaid bills of 1912, which were deducted from the current receipts of this year in the final accounting.

Extraordinary Expense Exhibit.

Membership Record Ledgers	\$157.44
Accounting Books and Supplies	21.56
Services of Auditor	68.50
Freight and Express	56.78
Office rent, W. Haughey, 1912	120.00
Adv. Commissions, W. Haughey, 1912	
accts.	107.32
Due Postmaster Battle Creek, 1912	9.44
Bill for binding 1912 Journals, Battle Creek	12.00
W. A. Stone, Treasurer Expense	2.94
Mailing List for Post Master, Grand Rapids	6.00
Total	\$561.98

MEDICAL DEFENSE COLLECTIONS.

A total of \$2,013.25 Medical Defense League's dues have been collected and turned over to the Treasurer. A special form of remittance blank was designed, and the members' names, residence and date of payment, as well as their County Society affiliation, was used in reporting the membership to the Chairman of the Defense League Committee. At the end of the year these blanks may be bound and thus a permanent rostra secured. Our remittances have been forwarded on the first of each month.

For your further enlightenment I append herewith the following comparative statements for the past nine years:

EXHIBIT—Comparative Statement Last Few Years.

Receipts						
	Dues	Adv.	Misc.	Reprints	Interest	Total
1904	\$3,283.50	\$2,025.93	\$36.18			\$5,344.60
1905	3,604.52	2,005.30	16.32			5,626.14
1906	3,290.29	2,297.78	25.81			5,613.88
1907	3,885.75	2,158.92	26.55			6,071.22
1908	4,033.50	1,786.53	16.00		\$ 27.68	5,863.71
1909	4,034.18	2,073.71	16.94		48.61	6,174.44
1910	3,683.30	2,016.97	43.76		86.69	5,830.66
1911	4,269.65	2,122.59	18.38	\$156.00	201.66	6,768.28
1912	4,108.00	1,851.92	65.85	184.25	190.35	6,400.37
1913	4,208.00	3,045.08	00.00	310.75	146.23	7,907.66
Disbursements.						
	Journal	State Soc.		Reprints	Profit	Total
1904					\$119.69	\$5,344.60
1905	\$4,265.26	\$ 772.42			588.46	5,626.14
1906	4,092.94	1,499.32			21.62	5,613.88
1907	4,193.06	924.71			853.45	2,071.22
1908	4,226.98	941.77			694.96	5,863.71
1909	4,263.45	739.62			1,171.37	6,174.44
1910	4,182.41	1,686.51			(loss) 38.26	5,830.66
1911	4,219.65	1,335.93	\$350.81	\$186.22	675.67	6,768.28
1912	3,821.90	1,249.74	423.99		904.74	6,400.37
1913	4,325.97	2,406.93	416.50		758.26	7,907.66

THE JOURNAL							
Years	No. Pages	Per Cent Adv.	Total Cost.	Cost Per Page.	Adv. Received	Cost Per Member	No. Mem.
1902	248	21					
1903	826	23					1,653
1904	799	28			\$2,025.92		1,777
1905	870	28	\$4,265.26	\$4.89	2,005.30	\$1.27	1,790
(Change of Editor.)							
1906	942	28	\$4,096.94	\$4.34	\$2,297.78	\$.97	1,873
1907	904	28	4,193.06	4.64	2,158.92	1.07	1,892
1908	857	24	4,226.98	4.93	1,786.53	1.29	1,883
1909	836	25	4,263.45	5.10	2,073.71	1.21	1,962
(Change of Editor.)							
1910	894	21	\$4,182.41	\$4.67	\$2,016.97	\$1.00	1,979
1911	928	23	4,219.65	4.55	2,122.59	.97	2,158
1912	1 042	17	3,821.90	3.66	1,851.92	.87	2,168
(Change of Editor.)							
1913	1,190	23	4,325.97	3.63	3,045.08	.58	2,205

I would suggest that the funds now invested in certificates of deposit be re-invested in mortgages or bonds and thus become greater revenue producers by reason of increased interest returns. The funds on hand are sufficient for our banking requirements.

In closing these comments upon our finances I desire to draw your attention to the necessity of a fire-proof cabinet in the office of your Secretary. The records that we now possess represent a considerable investment in money and labor. Their destruction by fire would entail their compilation anew at a considerable financial expense and even then much valuable data would be irretrievably lost. Their permanency may be assured by the purchase of a fire-proof steel cabinet at an expenditure of about \$100.00. Your instruction regarding the safeguarding of our records is solicited.

MEMBERSHIP.

The membership enrollment on Dec. 31st, 1913 was 2,205, and is distributed among sixty County Societies in the following exhibition of the enrollment of each component organization.

Alpena	18	Ionia	20
Antrim	3	Isabella	
Barry	6	Clare	13
Bay		Jackson	45
Arenac		Kalamazoo Acad. ..	
Iosco	48	Kalamazoo	
Benzie	5	Van Buren	
Berrien	25	Allegan	136
Branch	13	Kent	134
Calhoun	69	Lapeer	24
Cass	12	Lenawee	36
Charlevoix	3	Livingston	14
Cheboygan	6	Macomb	16
Chippewa		Manistee	13
Luce		Marquette	
Mackinaw	25	Alger	38
Clinton	19	Mason	5
Delta	20	Mecosta	19
Dickinson-Iron	7	Menominee	13
Eaton	31	Midland	5
Emmet	14	Monroe	21
Genesee	78	Montcalm	22
Gogebic	14	Muskegon	
Grand Traverse ...		Oceana	33
Leelanau	23	Newaygo	10
Gratiot	25	Oakland	46
Hillsdale	15	Otsego	
Houghton		Montmorency	
Baraga		Crawford	
Keweenaw	48	Oscoda	
Huron	20	Roscommon	
Ingham	61	Ogemaw	

O. M. C. O. R. O. ..	20	St. Clair	40
Ononagon	9	St. Joseph	15
Osceola		Wexford	
Lake	7	Kalkaska	
Ottawa	27	Missaukee	
Presque Isle	5	Tri-County	20
Saginaw	41	Tuscola	36
Sanilac	8	Washtenaw	71
Schoolcraft	7	Wayne	597
Shiawassee	28		

The membership enrollment reported to you on Jan. 1st, 1913, was 2,166. Consequently we close our present year with a gain of 37 members.

The directory of the A. M. A. gives Michigan a population of some 4,100 physicians. Inasmuch as this number includes the names of men retired from active practice, engaged in commercial pursuits, employed in laboratories and teaching capacities, as does it also contain many who are not eligible to membership, we feel that conservatively we may estimate that there are 3,400 physicians eligible to membership in our County and State Society. With the enrollment of 2,205 members we have 64% of eligible physicians affiliated with our County and State Organization.

To exercise its greatest influence, to accomplish the work of organized medicine, to exhibit a convincing and impressive opinion on all public and professional questions, our organization should be composed of at least 75 to 80 per cent. of the eligible physicians in the State. To attain this enrollment we have, in so far as our other duties permitted, advanced the following efforts to secure this increased membership:

(1) Editorially we have urged County Societies and individual members to secure the affiliation of their doctor friends who are unaffiliated.

(2) We have also, through the County Secretary's Department of THE JOURNAL, urged the County Secretary to induce his society to institute a membership campaign.

(3) We have, in our visits to several societies, urged the securance of the affiliation of the non-member.

(4) The Secretary of the A. M. A. has under his control a trained corps of canvassers who call upon individual and eligible physicians; explain to them the value to the doctor of membership in his County Medical Society; urge them to file their application for membership, and securing it they place these applications in the hands of the County Secretary for election to active affiliation. In compliance with your recommendation we secured the presence of these canvassers in Michigan on Dec. 1st. They are still engaged in this canvass, and to date a total of 247 members have been secured.

Present indications warrant our prophesying that by March 1st, 1914 we shall have attained a total of 3,000 new members in good standing.

Mere numerical strength, however, should not be our final goal. The future must be made to record the efforts of our organized strength in solving the problems of public health, preventative medicine, eugenics, scientific medicine, and acts of State officials so that the greatest good and highest ideals may be attained and thereby securing for our organization and the individual doctor the respect and consideration to which they are rightly entitled, as well as recognition as being a reliable authority to which our public may appeal in all matters pertaining to health and sanitation. Mindful as we should be of the duty that we owe to our State politic, we must not neglect our individual advancement and betterment, professionally and commercially. Organized effort that will secure to a fuller extent a spirit of universal harmony and friendliness within our ranks, and the increase of our material possessions in just proportions to the services that we render to our patients, demand our study and the adoption of a definite plan of activity. The time is here when Michigan may readily assume the leadership, and thus demonstrate to our sister states the greatest value that may be derived from organized effort. Unless we are content to remain in our present position this phase of organized effort should be given careful consideration.

COUNTY SOCIETIES.

There have occurred no changes in the component organizations—our County Societies. With few exceptions they are in a flourishing state and are conducting meetings that are productive of great profit to their individual members. They are conducting meetings that are creating an interest in scientific work and are also considering problems concerning public health, and thus are actively engaged in advancing the work of reform propagandas.

Too much credit cannot be given the Secretaries of the various County Societies. We are indeed sorry that in certain instances the work performed by the County Secretary is too little appreciated. These officials in many instances have the responsibility of the entire society vested in them, and it is their zeal and enthusiasm that determines the standing and achievements of the County Society. Much of their time is required in performing the duties of their office, and it is but proper that the members should recognize in a fitting manner the services that are rendered by County Secretaries. It is a pleasure to acknowledge the general co-operation and assistance that this office has received from these County officials—the hard working secretary merits a special vote of thanks from the State Society. I would request authority to again entertain the County Secretaries at a dinner during our next annual meeting, and urge the presence of the Council at that dinner.

During my term of office I have visited the following County Societies, and in addition to reading a scientific paper at their meetings I have imparted to them general information as to the work that is being done by the State organization:

Berrien
Genesee
Mecosta
Lapeer
Montcalm
Upper Peninsula at Ishpeming
Ottawa
Wayne
Tri-County

The increased work entailed in the installing of

a new system of records has prevented me from becoming acquainted with a larger number of county organizations. I have, however, accepted every invitation extended, and trust that the coming year will enable me to find the opportunity of visiting other of the County Societies and thus acquaint them intimately with the work of the State Society as well as ascertaining how their parent organization may best serve them.

I cannot refrain from suggesting that the interests in, and the work of each County Society, would be markedly advanced if it were possible for each Councilor to arrange for the holding of one or two union meetings of the societies of his district during each year. A day's program of short, crisp, live papers followed by active, pre-arranged discussions, and the day ending with a banquet and suitable entertainment features would I believe be productive of beneficial results. It is worth the experiment. I am aware that some of our councilor districts profitably hold such meetings—the mention is made so that such meetings may become universal throughout the State.

While I appreciate that local circumstances, roads and transportation facilities in a great measure govern the time and the place for the holding of meetings, still I believe that no society should hold meetings at longer intervals than one month; semi-monthly is better. Quarterly meetings should be abolished. Each society that holds only quarterly meetings I am sure would take on greater life and greater activity if monthly meetings were held. A member attending a meeting once in three months loses his enthusiasm; his interests wane; and he does not feel the spirit of concentrated organized effort. I would that your body would consider the advisability of urging the holding of monthly meetings of those societies now holding only quarterly meetings.

ANNUAL MEETING.

It is hardly necessary to consider the 48th Annual Meeting that was held in Flint, Sept. 4th and 5th, 1913. A record of its transactions has been published in *THE JOURNAL*, and I think we are fairly agreed as to the success of that meeting.

It devolves upon the Council at this meeting to select the date for the 49th Annual Meeting that is to be held in Lansing during September, 1914.

At the last session of the Council you authorized your Secretary to employ competent stenographers to record the transactions of the annual meeting, and the discussions that followed the various papers that are presented before the sections. Your Secretary requests your authority to revise such discussions and to publish them in connection with the original papers without submitting proof to the utterant. This is asked because it has been our experience that when such proof is submitted it is returned to us so altered that it no longer contains the original thoughts as they were expressed during the discussion.

THE JOURNAL.

THE JOURNAL has, I believe, for the first time in its history closed its year with a balance on the profit side of the ledger in addition to publishing a larger *JOURNAL* at an expense of \$500 additional. For your consideration, information and recommendations the following data is submitted:

No. of Original Articles 122—average of 10 per issue.

Advertising pages Vol. XII 272, Vol. XI 178. Increase 94 pages.

Total pages Vol. XII, 1,190; Vol. XI, 1,042. Increase for year 148 pages.

No. of Editorials 39—average of 3 per issue.

No. of Illustrations 124.

No. of County Society Reports 136.

	1913	1912	Increase
Subscription receipts ..	\$2,210.65	\$2,054.00	\$244.65
Net adv. receipts	3,045.08	1,437.90	1,607.18
Total cost	4,325.97	3,821.90	504.07

Net profit for year deducting reprints cost:

	1913	1912
Cost per member	\$.56	\$.87
Cost per page	3.63	3.66

THE JOURNAL receives its original articles from the essayists before our various sections and in addition the papers that are read before the County Societies. The number thus available has not been sufficient for our needs, consequently we have supplied the deficiency by soliciting the contribution of articles from the leaders of our profession throughout the country. THE JOURNAL has been fortunate in having been designated as the official organ of publication for the Transactions of the Clinical Society of the University of Michigan. The papers available from this source are of immense scientific value and interest, and their publication will tend to increase the interest in our JOURNAL throughout the country as well as throughout the State. Editorially we have endeavored to adhere to the following policy:

To so edit THE JOURNAL that it will reflect the standing of the profession of the state, maintaining its every dignity; to make it of value to every recipient, so that he may obtain some direct benefit from every issue that he receives; to briefly, yet concisely and accurately, chronicle the advancement of general medicine and surgery and their various specialties; to keep the reader enlightened as to State and County Society activities; to publish the medical news of the state and the profession; to conduct an editorial department devoted to comments on society and organization work, medical and social economics, medical and civic legislation, health problems and such other topics as current events may dictate; to secure a class of advertisers who cater to the needs of the profession, and to assure every reader that he may safely enter into business relationship with any one of our advertisers with the conviction that he is dealing with none but absolutely reliable parties. How well we have adhered to this policy during the past year is to be determined by your body and the members of the state organization.

Believing that the consideration of certain subjects and questions falling in the field of the recognized special branches of our profession could only receive the best consideration when discussed by these same specialists, we have adopted the plan of soliciting signed editorials upon scientific subjects from recognized leaders in these specialties in Michigan. During the coming year, with your approval, we propose to feature these editorials upon a larger scale, for it is our opinion that they are of interest to every reader.

Now that THE JOURNAL may be considered as being upon a paying basis, we request your instructions as to the advisability of increasing its number of pages up to 100 or 150 as an average issue. Heretofore the average number of original articles has varied from four to eight. We feel that the JOURNAL will become of greater value and interest if 14 to 18 original articles are published each issue, and thus enable the editor to publish two or three papers in each number bearing upon some subject in each of the several branches of our profession.

REPRINTS.

One hundred reprints have been supplied free of charge to each author, the cost of which amounted to \$105.75. I would recommend that this custom

be discontinued and reprints be furnished at regular rates. Many authors do not care for reprints and would not order them if these one hundred were not gratis. The money spent in furnishing reprints will be productive of greater good if invested in increased illustrations and size of our JOURNAL.

ADVERTISEMENTS.

The advertising receipts of THE JOURNAL amount to \$3,045.08.* An increase of \$1,607.18 over the previous year. The cost of securing this advertising has been \$167.82 paid in commissions to Chicago and St. Louis agents and to Dr. Haughey as per precedent established. By the present arrangement THE JOURNAL has saved some \$600.00 in commissions. The increase in advertising has been secured by means of correspondence on the part of your editor, and in a few instances by personal solicitation.

At the meeting of the A. M. A. in Minneapolis your Secretary-Editor introduced a resolution, the passage of which has secured the establishment in Chicago of a Co-operative Advertising Bureau of State Medical Journals. This Bureau, which commenced operations Dec. 1st, will supply affiliated State Journals with whatever advertising contracts its solicitor may secure from national industries whose advertising copy it is impossible to secure through any other means than personal solicitation. Twenty-five per cent. commission is paid by our JOURNAL for whatever contracts it receives from this Co-operative Bureau.

Throughout the year, by means of editorial comments, blotter reminders and "stickers" on every letter, we have striven to impress our members with the necessity of patronizing our advertisers. This is an extremely important subject, and one which will determine the future success of our JOURNAL. Unless the advertisers receive a reasonable return upon the money they invest in our publication we cannot expect them to continue their patronage. The renewal of their contracts depends upon the returns they receive from their advertisement. Our failure to secure a sufficiently large advertising revenue will be by reason of non-patronage from our members. Without the revenue we will not be justified in enlarging and adding new features to our publication. We consequently urge that each Councilor upon every possible occasion should make it a point to impress this fact upon the members of his district. This co-operation will enable our Society to publish the best of all State Journals.

Our list of subscribers outside of the state is growing. Of the January JOURNAL five hundred copies were mailed to the University of Michigan graduates residing outside of the state. A letter calling attention to the Clinical Transactions, and soliciting a year's subscription accompanied each such sample copy. It is yet too early to report upon the results of this effort to increase our foreign subscribers list.

While we are in a measure satisfied with what has been accomplished thus far, still there remains plenty of opportunity for development work during the coming year. Unless one is conversant with the work that is demanded to issue each number it would be difficult to point out the time and labor involved. In addition to that we have twice changed our forms and makeup, revised our mailing lists and established a new set of accounting books. This additional work has curtailed our efforts towards developing new features, and much that was planned has for this reason remained untouched and awaits future attention. A firm business basis has, however, been established, and THE JOURNAL'S future was never more promising.

CONCLUSION.

There has been established a new membership record system that clearly and distinctly records the status and data pertaining to each member. The transcribing of these 2,300 names and their proper classification and secondary verification was accomplished without the employment of additional clerical assistance.

At present we are engaged in transcribing the minutes and transactions of the Society and Council for the past twelve years so that they may be permanently preserved in official record volumes. This work will be completed by the next annual meeting.

I would be remiss in the discharge of my duty if in closing I failed to acknowledge to you my appreciation of the assistance I've received from many of our members and the officers and committees of the Council. Much that has been accomplished is solely due to the assistance they have rendered unto me. In acknowledging this co-operation from our entire organization I have but one apology to express, and that is my inability to render you a report that records greater field activity on my part.

All of which is respectfully submitted.

(Signed)

F. C. WARNSHUIS,
Secretary-Editor.

The Chairman referred the portions of the report of the Secretary-Editor relating to the County Societies to the Committee on County Societies; that portion relating to the finances and funds of the Society to the Finance Committee; that portion relating to THE JOURNAL to the Publication Committee.

The report of the auditor and the report of the Treasurer was read by D. Emmet Welsh, and referred to the Committee on Finance.

Dr. F. B. Tibbals, Chairman of the Medico-Legal Committee, read the following report:

ANNUAL REPORT OF THE MEDICO-LEGAL COMMITTEE.

Detroit, Mich., Jan. 20, 1914.

To The Council,

Michigan State Medical Society:

In the four years of this work there have been reported to us 94 cases, 32 of these during 1913. This is a considerable increase over 1912, attributable partly to the fact that all cases arising among our members are probably now reported to us, since the Insurance Company writing most of such business has asked our co-operation for our local influence in the profession. As the prevention of malpractice suits is better than defending them after they arise we are glad to work with the Insurance Company to that end and this unity of purpose has put a stop to the attacks on our efficiency which made some of our members dissatisfied.

We feel that the best part of our work is the influence of this Committee, through its local member particularly, upon the local profession in harmonizing and solidifying them, so that the critical word which starts suits and the adverse testimony which allows them to succeed is increasingly hard to get. There would be but few suits against physicians were we really united and we are making good progress toward that end. Although no new cases can be attributed directly to the workings of the Workmen's Compensation Act, the increase of cases based on trivialities shows that the hungry lawyer is looking for something to replace the speculative business taken away by the Act.

Nineteen thirteen has been our largest year in court cases. We have paid about \$2,150 in attorney fees and court costs in fifteen cases involving eighteen men. In five of these we have taken final judgment where the plaintiff withdrew; ten cases have been fought, and of these we have won seven and lost three. All adverse verdicts are in appeal. In one case the plaintiff put in no testimony in the justice court in order to appeal to the circuit court and there charge malpractice. This was a suit for fees in a fracture of a femur where union with bad alignment was followed by a plating operation; refusal of payment being based on the opinion that the fracture should have been so set as to give a good result without operation, hence the doctor was not entitled to pay for an unsatisfactory result. We took charge of this suit hoping to prevent suit for malpractice but the appeal from our victory leaves the matter still open.

Two of the cases lost were against the same doctor, on similar grounds—failure to keep implied contract in an obstetrical case. In one case with false pains the doctor had been watching around for twenty-four hours or so, but when pains became strong toward the last he was away from his office and the child was born before his arrival. A justice court jury said this was worth \$100. In the other, two cases came together. The doctor stayed with the one that called him first and sent his assistant to care for the other, himself taking charge shortly after the delivery. Patient died a week or so later from pneumonia which is alleged to have been septicaemia, due to his failure to attend himself. It was charged that had he been there he would have made the delivery painless by an anesthetic and that his mere presence would have helped his patient to an easy labor. There was no medical testimony for the plaintiff but an untrained nurse charged the doctor with negligence in not examining the woman when he took charge, and curetting and irrigating the uterus when symptoms of serious illness began. Despite the absence of legal proof of negligence or incompetence the judge allowed the case to go to the jury who gave an adverse verdict of \$500. Both these cases are in appeal with the expectation of obtaining justice for the doctor. (Since writing this report we learn that the judge has set aside this unjust verdict and granted a new trial.) The point raised that of liability under an implied contract, is of interest to every man who takes obstetrical cases. The other case lost is a fracture of the forearm with some deformity but a good functional result. The patient lived sixteen miles away from an X-Ray machine, still a radiographer testified that he thought a doctor negligent who did not have a radiograph in any fracture. As a result of this testimony and the failure of counsel to nullify it by the testimony of local men that such was not their practice or their opinion, a large verdict was brought in against the defendant. He was defended by the best attorneys in his vicinity who thought themselves so competent that, contrary to our instructions, they tried the case without the legal aid of our general attorneys. The outcome of this case has convinced us that many attorneys, prominent in other fields, are incompetent to try medico-legal cases and hereafter we shall send our general attorneys to the trial of all important cases. While this case is being appealed our general attorneys fear that the mis-trial may have deprived the doctor of legitimate legal grounds for appeal. Since this case was tried we have had two hard fought suits where our general attorneys were able to so strongly present the law and the facts that the court directed a verdict for the defendant—one a crippled shoulder, the other an operation on a

tubercular ankle which, it was alleged, so destroyed the bones and ligaments as to render the leg useless and cause subsequent amputation.

This plan of having our general attorneys try every case may necessitate placing more money in the Medico-Legal Fund at some time in the future but will give every important case the benefit of the best legal talent in the state.

We have handled one suit for alleged bad results following the use of neo-salvarsan so successfully that the suit was withdrawn; another testimonial to the influence of the local profession. One death from placenta praevia, coming a few hours after the uterus was emptied has led to many threats, but our success in harmonizing two local doctors has made defense so strong that suit is not expected. One "Sponge" case will doubtless be compromised by the Insurance Co., as the surgeon wishes to avoid the trouble and notoriety of defense. We have one threat involving three men alleging blame for a small fragment of gauze which came out a few months after a very extensive operation of ethmoidal and frontal sinus. We have one suit against two men for failure to find and remove the appendix in an operation for drainage of an appendiceal abscess.

Most of the 1914 cases are based on trivial grounds and but few of them will give any further trouble. As has been said, many of them show the indirect effects of the Workmen's Compensation Act, which has driven the hungry lawyer into other fields of industry. The number of cases awaiting trial, or, in which trial is expected is comparatively small and we enter upon the work of the coming year with great confidence and with increased strength.

Respectfully submitted,

F. B. TIBBAL, Chairman.
C. B. STOCKWELL,
E. C. TAYLOR,
C. W. HITCHCOCK,
ANGUS McLEAN.

The Chairman referred the report of the Medico-Legal Committee to the Committee on Finance.

The Chair appointed the following committees of the Council for the ensuing year:

FINANCE COMMITTEE.

D. H. McMullen, Chairman.
A. L. Seeley
C. H. Baker
F. C. Witter

PUBLICATION COMMITTEE.

A. M. Hume, Chairman
W. J. DuBois
W. J. Kay
C. T. Southworth

COUNTY SOCIETIES COMMITTEE.

A. H. Rockwell, Chairman.
A. P. Biddle
A. E. Bulson
R. S. Buckland
A. S. Kimball

Dr. W. J. DuBois read a letter from Dr. Wilfrid Haughey relative to the payment of commission on certain advertising matter. On motion of Dr. DuBois, supported by Dr. Baker, the correspondence was laid upon the table.

The Council then adjourned for lunch.

SECOND SESSION.

The second session of the Council was called to

order at 2 o'clock, the Chairman presiding, and the following Councilors present:

1st District—A. P. Biddle (Absent by reason of illness.)

2nd District—A. E. Bulson

3rd District—

4th District—A. H. Rockwell

5th District—W. J. DuBois

6th District—A. M. Hume

7th District—W. J. Kay

8th District—A. L. Seeley

9th District—B. H. McMullen

10th District—C. H. Baker

11th District—W. T. Dodge

12th District—R. H. Buckland

13th District—F. C. Witter

14th District—C. T. Southworth

Treasurer—D. Emmet Welsh

Secretary-Editor—F. C. Warnshuis.

A. H. Rockwell, Chairman of the Committee on County Societies submitted the following report:

Your committee on County Societies makes the following recommendations:

That the Councilors urge and recommend that the component societies in their district should hold their meetings at intervals of one month, and that if possible they should arrange to hold semi-monthly meetings.

The Council endorses and commends the membership campaign that is being carried on by means of special canvassers who are covering the state, and that the Councilors urge the co-operation of all the members of their component County Societies in assisting the securing of the applications for membership from all the eligible physicians of the various counties.

That the Council again endorse the custom of active field work by the State Secretary and instruct him to continue this work in accordance with his best judgment.

That the Secretary again be authorized to entertain the secretaries of the various County Societies at a dinner during the Annual Meeting that is to be held in Lansing.

That the Secretary be authorized to write to the Board of Trustees of the American Medical Association requesting and urging that the Board of Trustees of the American Medical Association takes such action as may be necessary to secure the payment of the actual expenses of the delegates of the various State Societies to the House of Delegates of the American Medical Association.

That Thursday and Friday, September 11th and 12th, 1914, be selected as the dates for holding the 49th Annual Meeting of the Society in Lansing.

(Signed)

A. H. ROCKWELL, Chairman.

A. E. BULSON

R. S. BUCKLAND.

Upon motion of Dr. Hume, supported by Dr. Rockwell, the report of the Committee on County Societies was adopted as read and its recommendations concurred in.

Dr. A. M. Hume, Chairman of the Publication Committee, rendered the following report:

Your Publication Committee beg leave to report as follows:

Our Secretary-Editor in his annual report has shown an increased advertising income during the past year of \$1,437.09, and a decreased per capita cost of THE JOURNAL from 87 cents in 1912 to 56 cents in 1913. In view of the facts evident to all, that both the mechanical and literary value of the JOURNAL has greatly appreciated—this is all a matter of great satisfaction to our Society and should be one of congratulation and appreciation of the most efficient work done by our Secretary-Editor.

Your Committee approves of the recommendation of abolishing the plan of a permanent staff of editorial collaborators and recommends that the Editor hereafter secure scientific editorials from leaders in special lines of work throughout the state.

Too much cannot be said to encourage the patronizing of the advertisers in our JOURNAL, and this Committee recommends the adoption of every consistent effort to keep this idea constantly before our members.

It has been shown that with our increased resources from advertising the JOURNAL may be increased to an average paging of one hundred to one hundred and fifty per issue, and still remain self-sustaining. We believe that we should give all value possible to our members in the make-up of THE JOURNAL, and, therefore, recommend that THE JOURNAL be made as large as possible consistent with its resources.

The Secretary-Editor has asked that discussions of papers be edited and printed without submission to the utterant. We recommend that this plan be adopted.

We recommend that the Editor be authorized to purchase a Standard Dictionary for reference in his editorial work.

It is further recommended that the practice of furnishing free reprints to the extent of one hundred to authors of papers be discontinued.

All of which is respectfully submitted.

(Signed) ARTHUR M. HUME, Chairman.
W. J. DuBois
W. J. KAY
CHAS. T. SOUTHWORTH.

On motion of Dr. Southworth, supported by Dr. McMullen, the report of the Publication Committee was adopted as read and its recommendations concurred in.

B. H. McMullen, Chairman of the Finance Committee, made the following report:

Your Finance Committee recommends that the Secretary be authorized to purchase a fire proof safe for the preservation and safe guarding of the records of the Society.

Your Committee also feels that the Secretary-Editor's salary should be raised, and it is the consensus of our opinion that the salary should be fixed at \$1,500 for the ensuing year.

The Committee also recommends that for the present it would be better to invest all our surplus cash in certificates of deposit earning 4 per cent. interest.

The Committee also acknowledges the receipt of the report of the public accountant, W. H. Shults, and on investigation have reconciled the financial report of the Secretary-Editor and Treasurer and find them correct.

(Signed) B. H. McMULLEN, Chairman.
A. L. SEELEY
C. H. BAKER
F. C. WITTER.

Upon motion of Dr. DuBois, supported by Dr. Kay, the report of the Finance Committee was adopted and its recommendations concurred in.

Moved by Dr. Hume, supported by Dr. Buckland, that the Council approve and recommend to each County Society that they appoint a committee from amongst their members to take up the matter of dealing with illegal practitioners in their respective county. Carried.

Dr. DuBois moved, supported by Dr. Baker, that F. C. Warnshuis be elected Secretary-Editor for the ensuing year. Carried.

Moved by Dr. Baker, supported by Dr. Southworth, that D. Emmett Welsh be elected Treasurer for the ensuing year. Carried.

Moved by Dr. Rockwell, supported by Dr. Seeley, that Frank B. Tibbals be elected as chairman of the Medico-Legal Committee for the ensuing year.

Moved by Dr. Bulson, supported by Dr. Witter, that Dr. E. C. Taylor be elected as a member of the Medico-Legal Committee to succeed himself. Carried.

On motion the Council adjourned to hold its next meeting at 8 o'clock p.m., Sept. 10th, 1914 at Lansing.

W. T. DODGE, Chairman.
F. C. WARNSHUIS, Secretary.

Deaths

Dr. John S. Caulkins, Metamora, died on December 30th, 1913, age 92, of heart failure. Dr. Caulkins was one of the best known physicians in that section of the country, having practiced medicine there for the past 66 years. He was an honorary member of the Lapeer County Medical Society and of the Michigan State Medical Society. He was a noted linguist, and the possessor of one of the largest private libraries in that part of the state.

Dr. Henry Lorenzo O'Betz died at his home in Detroit on December 18th, 1913. Dr. O'Betz was at one time Dean of the University of Michigan Homeopathic Medical Department. He was a member of the Wayne County Medical Society and of the Michigan State Medical Society.

Dr. Daniel P. Deming, Cass City, died at his home at the age of 40, after a brief illness of septic poisoning.

County Society News

DELTA COUNTY.

The 16th annual meeting of the Delta County Medical Society was held on Tuesday evening, January 20th, in the new Delta Hotel in Escanaba. The following officers were elected for the year 1914:

President—Jas. Mitchell, Gladstone.
Vice-Pres.—W. A. Lemire, Escanaba.
Secretary—H. W. Long, Escanaba.
Delegate—A. S. Kitchen, Escanaba.
Alternate—Dr. Mole, Foster City.
Member Medico-Legal Com.—Dr. D. N. Kee, Gladstone.

After the transactions of the business meeting the members adjourned to the banquet room of the Delta Hotel and after participating in a very elaborate meal the following toasts were responded to under the genial guidance of Dr. A. F. Snyder as toastmaster:

The Lawyer—L. C. Girard.
The Surgeon—G. R. Empson.
The Clergyman—Geo. Bjorkman.
The Doctor and the Clergyman—Father Julius.
The Social Side of Medicine—C. F. Larson.

Those present from outside of the county were Dr. C. F. Larson of Crystal Falls, Dr. Mason of Hermansville, Dr. Sawbridge of Stevenson, Dr.

W. Spaulding of Bark River and Dr. Ptolmey of Trenory.

(Signed) H. W. LONG, Secretary.

DETROIT OTO-LARYNGOLOGICAL SOCIETY.

A meeting of the Detroit Oto-Laryngological Society was held November 18th, 1913, at the Wayne County Medical Bldg., with Dr. J. Vernon White in the chair.

Dr. H. Dibble, Detroit, as guest, read a paper, "The Pulmotor."

Extract. The oxygen from the tank flows through a reducing valve, which at the outlet side maintains a pressure of about 75 pounds, and from there to the controlling valve. Initially, the passage to the lungs is open through this controlling valve. The latter connects to rubber tubes leading to a metallic face cap with a rubber rim which closely fits the patient's face. This face cap on one side is provided with a rubber bag which permits a pair of forceps to protrude, by means of which the patient's tongue is held from obstructing the pharynx. The oxygen then has free access to the lungs.

When the pressure in the lungs has reached a certain degree, about normal, a bellows interconnected with the lung cavity through the rubber tubes actuate the controlling valve. The pressure of the oxygen is now directed so as to create a suction over the connections which lead to the lungs, thereby causing exhalation of the gases previously forced into the lungs. When a certain vacuum is reached in the lungs and bellows, the outer atmosphere acts on the latter, which in turn operates the controlling valve and again admits the oxygen to the lungs. The frequency of these reversals depends upon the size of the lung cavity, a larger space requiring greater time, while with smaller lung cavities the operation is correspondingly more frequent.

This process is continued until the patient shows signs of natural respiration. The pulmotor action is then discontinued and the patient is allowed to breathe the pure oxygen through another small face cap connected by a hose directly to the oxygen tank.

The automatic feature of the apparatus has been brought into play in about fourteen cases of asphyxiation, morphine poisoning, and electric shock, and in one case of acute bronchial trouble in a baby two months of age. Of this total about eight were beyond resuscitation by any method, *rigor mortis* having set in, or other complications being present. In six cases it effectively resuscitated people who, by the attending physician, were considered to be in an almost hopeless condition.

Especially gratifying is the experience with an infant. It was thereby aided in overcoming the crisis in a severe bronchial attack and is now doing well.

The apparatus was demonstrated.

Dr. Wm. J. Cassidy, Detroit, Mich., read a paper: "Fractures of the Cranium with Involvement of Sinuses and Middle Ear."

Extract: The distribution of forces applied to the cranial vault depends on:

1. Nature, direction, size and velocity of applied instruments.
2. Cohesion, tensile strength, resistance to immediate pressure of bony structures.
3. Arrangement of supporting buttresses and foramina.
4. Small, mobile base of support—the spine.
5. Nature in the contents—a semi-fluid pulsating

body entirely filling the case, enclosing several large inter-communicating cisterns—the ventricles filled with thin, watery fluid, the whole surrounded by three membranes: (A) The inner composed of delicate elastic covering. (B) The middle network of thin walled blood vessels which dip down into the innumerable convolutions ramifying into the brain substance but not inter-communicating, i. e., they are not vessels. (C) The outer a dense almost inelastic supporting membrane through which course many large arteries and collecting sinuses, supplying the bony case and attached in areas to same.

Analyzing a series of some sixty (60) fractured skulls from service of Dr. Dollman and myself and some twenty (20) in service of Drs. McLean, Brooks and myself, we find that at least 75% involved the base and middle ear, especially middle fossae, the remaining 25% were distributed between anterior and posterior fossae.

1. Elasticity of Cranium.

In classification these fractures varied in method of production from immediate impact overcoming tensile strength of bone (wheel or cake of ice falling on head) to velocity imparted to moving of stationary body by an irresistible force—applied so as to thrust the body some distance, fracture resulting from impact on falling, (e. g., striking a wagon throwing out occupants) or to momentum attained by falling body, (e. g., falling from height), producing fractures varying from simple linear to more extensive crushing, depressed and comminuted, etc., with perforation or vault or base. These applied forces producing intra-cranial lesions designated as concussion—contusion and compression—simply a continuance of same process, i. e., concussion being but temporary stimulation of cortex with loss of consciousness for short time, without any demonstrative brain pressure due to rupture of vessels with hemorrhage and edema.

Will endeavor to illustrate points by following case histories—several histories following. Among them:

Case I. Male, 45 years of age. Entered hospital one hour after accident, most forcibly struck by flying wheel on left frontal eminence. Was dazed for some time after accident, but when I saw him he complained principally of dizziness, headache, and persistent hemorrhage from mouth and nose. On examination I found a 2½ inch wound on left frontal eminence, which, on closer observation showed area of bone about three inches long by three-quarters inches in width crushed inward compressing the brain.

Examination under ether revealed the fragment firmly imbedded in the dura immediately above the sinus, with multiple radiating fractures extending through the orbital plate of frontal bone, cribriform plate of ethmoid, crushing of inner wall of frontal sinus.

Elevation of depressed fragments from sinus was followed by sharp hemorrhage which was controlled by fine cat gut suture.

Removed the ethmoid plate with Crista Galli, posterior wall of frontal sinus, portion of orbital plate, and parietal (L) eminence of frontal bone.

Inserted gauze and rubber drainage. Patient made uneventful recovery and to date is practically well.

Case II. Male of 21 years of age, history of falling from hand car and struck on head by car following.

He entered hospital ten hours later, conscious. Complained of headache, persistent free hemorrhage from head, nose and mouth, temp. 99—P. 120'.

Examination shows 2½ inches laceration over right parietal eminence, bleeding freely on removal

of dressing, presenting a deeply depressed and comminuted fracture of both tables firmly imbedded in outer lobes of brain immediately above the sinus. Under ether anesthesia I gently elevated the fragments, which was followed by sudden severe hemorrhage from the lacerated sinus which could not be controlled by gauze pack. So clamped and attempted to suture, but was unsuccessful as dura was too tense and sutures cut, allowing considerable leakage so decided to reapply clamps and left them in situ. Drained freely with gauze and rubber dam. I removed clamps on the 8th day without further hemorrhage to date. Temperature from 90 to 100 degrees, all gauze removed and patient making uninterrupted recovery.

Lines of fracture extended into cribiform plate of ethmoid; orbital plate of frontal sinus also exposed.

Several very instructive cases followed, exhibiting involvement of the ear. Several X-Ray plates illustrated the paper.

Both papers were discussed generally.

EMIL AMBERG, Secretary.

EMMET COUNTY.

The Annual Meeting of the Emmet County Medical Society was held at the Cushman House the second Tuesday of December, 1913. There was a good attendance, and more than usual interest manifested. The following officers were elected for 1914:

President—L. W. Gardner, Harbor Springs.

Vice-President—L. S. Crotser, Petoskey.

Secy.-Treas.—G. W. Nihart, Petoskey.

Member Medical Defense—Geo. Reycraft, Petoskey.

Delegate M. S. M. S.—A. E. Runyan, Harbor Springs.

Alternate—J. J. Reycraft, Petoskey.

Censor—J. J. Reycraft, Petoskey.

The following program will be instituted at the meeting for February, 1914:

Report of a case of "Syncytoma Malignum"—Dr. L. Wheeler.

"Pneumonia"—Dr. A. E. Runyan.

Paper (Subject not known)—Dr. John Reycraft.

After an inspiring talk urging the elimination and personal feeling among the members and hard persistent work to further the interests of the profession in Emmet County by Dr. L. W. Gardner, president-elect, the meeting adjourned to meet Feb. 13, 1913.

G. W. NIHART, Secretary.

GENESEE COUNTY.

The regular monthly meeting of the Genesee County Medical Society was held Jan. 6th, 1914.

A paper entitled "Vaccine Therapy in the Light of its Recent Developments," was read by Dr. A. P. Ohlmacher of Detroit. Following the discussion of this paper Dr. W. M. Clift of Flint read a paper on "Food Disturbances in Infancy."

R. D. SCOTT, M.D., Secretary.

HILLSDALE COUNTY.

The Annual Meeting of the Hillsdale County Medical Society was held December 30th, 1913 in the Mitchel Library rooms.

Dr. Warthin gave a lecture and lantern slide demonstration on Cancer. The meeting was well

attended by the profession and also laymen. All seemed to be much pleased and gained considerable information regarding cancer and its influence on heredity. Dr. Warthin was tendered a vote of thanks of the Society.

The following officers were elected for the ensuing year:

President—Dr. B. F. Green, Hillsdale.

Vice-President—Dr. H. H. Frazier, Hanover

Secy.-Treasurer—Dr. C. T. Bower, Hillsdale.

It is planned to hold monthly meetings during the coming year.

C. T. BOWER, Secretary.

KALAMAZOO ACADEMY.

The Minutes of the Thirtieth Annual Meeting of The Academy of Medicine.

The minutes of the meeting of November 25th were read and approved. The annual report of the Secretary was called for by the Chairman and read as printed in the Bulletin. Dr. W. den Bleyker moved, Dr. A. H. Rockwell supporting, that the report be accepted and placed on file. Carried. Dr. A. S. Youngs, Chairman of the Clinical Program Committee gave the report as printed in the Bulletin. Dr. B. A. Shepard moved, Dr. A. H. Rockwell supporting, that the report be accepted and placed on file. Carried. Dr. Edward Bernstein reported for the Library Committee as printed in the Bulletin with some additional remarks, Dr. A. H. Rockwell moved, Dr. J. B. Jackson supporting, that this report be accepted and placed on file. Carried. Dr. Della Pierce reported for the A. M. A. Committee. She elaborated upon her report more than was printed in the Bulletin but all essentials had been expressed in the Bulletin. It might be mentioned in passing that the A. M. A. Committee reimbursed the Academy for all expenses incurred for the lecture of Dr. Evans. Dr. J. B. Jackson moved, Dr. W. A. Stone supporting, that this report be accepted and placed on file. Carried.

Dr. Herman Ostrander, Chairman of the Anti-Tuberculosis Society, did not make a report for the Bulletin, but only emphasized the work of the Committee as was being carried on by the Anti-Tuberculosis Dispensary. The report, as made by Dr. Ostrander, was moved accepted by Dr. C. H. McCain, Dr. G. F. Inch supporting, and was placed on file. Dr. Walter den Bleyker reported for the Illegal Practice Committee, which was essentially as given in the Bulletin and presented the resolution, which is as follows: "Be it Resolved, That the Academy of Medicine heartily endorses the attitude that the Chicago Tribune has taken toward all fake medical advertising, quack doctors, patent medicine, etc., and the elimination of all such advertising from its columns.

Be it further Resolved, That the Secretary be instructed to make copies of said resolution, one for the files of the Academy and one to be mailed to the Chicago Tribune, and to each local paper."

Dr. Edward Bernstein supported this resolution. Carried.

Dr. Edward Bernstein moved that \$75 be appropriated from the funds of 1914 for use of the library. Discussion by Dr. Herman Ostrander and Dr. L. H. Stewart. Dr. J. B. Jackson supported this motion, which was voted on and carried. The Chairman, Dr. C. E. Boys, brought emphasis to bear upon the annual dues. He stated specifically that our meetings cost 23 cents per member, but that each member paid but 8 cents for each meeting. The special assessment brought the actual receipts up to the actual cost. He also called the attention of the Academy to the fact that it was

impossible for any one to attend an out-of-town meeting of the type we hold for less than \$15.

The application of Dr. C. D. Pullen was acted upon by the Board of Censors, which consisted of Drs. O. H. Clark, Walter den Bleyker, E. P. Wilbur, W. F. Hoyt, J. H. Crosby, G. T. Britton, C. H. McKain. A motion was made and supported that Dr. Chas. Pullen be elected to membership and that application be put on file. Carried.

The committee on elimination of noise as appointed by the Board of Directors of Bronson Hospital, presented a communication at the last meeting of the Academy, a paragraph of which the Secretary wishes to strongly emphasize. The paragraph is as follows: "A request will be made of the owners of commercial trucks and vehicles that they instruct their drivers to observe our wishes in this particular, and we desire in this communication to expressly request the physicians operating automobiles to have this matter in mind, and to refrain from making unnecessary noise in operating their machines."

Every physician realizes the detrimental influence of unnecessary irritation, whatever may be the cause, and should co-operate with this committee in every particular, for this co-operation helps your patient.

The meeting now passed to the annual election of officers.

Dr. O. H. Clark moved, Dr. E. J. Bernstein supporting, that nominations for president be made from the floor. Carried.

Dr. Bernstein nominated Dr. Frederick Shillito, Kalamazoo, Mich.

Dr. Ellsworth nominated Dr. L. H. Stewart, Kalamazoo, Mich.

Dr. Della Pierce nominated Dr. A. I. Noble, Kalamazoo, Mich.

Dr. Rockwell nominated Dr. W. den Bleyker, Kalamazoo, Mich.

Dr. O. H. Clark nominated Dr. J. E. Maxwell, Decatur, Mich. Supported by Dr. Stewart.

Dr. J. H. Crosby moved, Dr. G. F. Inch supporting, that nominations be closed. Carried.

Dr. Inch of Kalamazoo, and Dr. Stewart of Hartford, were appointed tellers by the chair. Some discussion ensued as to the method of voting.

Dr. Jackson moved, Dr. Bernstein supporting, that they drop the man that had the lowest number of votes. Carried.

Total number of votes cast on first ballot were fifty.

Dr. Maxwell received	12
Dr. Noble received	3
Dr. den Bleyker received	13
Dr. Shillito received	9
Dr. Stewart received	13

Total number of votes cast on second ballot were fifty-two.

Dr. den Bleyker received	19
Dr. Shillito received	12
Dr. Maxwell received	21

Total number of votes cast on third ballot were fifty-four.

Dr. Maxwell received	33
Dr. den Bleyker received	21

Dr. J. E. Maxwell was elected President of the Kalamazoo Academy of Medicine for 1914.

The report of the nominating committee was received and read. The committee, which consisted of Drs. G. D. Carnes, J. B. Jackson and J. H. Crosby nominated the following members for the various offices respectively:

1st Vice-President—E. F. Swift, Comstock.

2d Vice-President—H. L. Charles, Paw Paw.

3d Vice-President—S. R. Light, Kalamazoo.

Secretary—C. B. Fulkerson, Kalamazoo. (hold over).

Treasurer—Frances Elizabeth Barrett, Kalamazoo.

Board of Censors for three years—A. W. Crane, Kalamazoo; W. A. Stone, Kalamazoo.

Delegates to the Michigan State Medical Society: G. F. Inch, Kalamazoo; C. E. Boys, Kalamazoo; F. C. Penoyer, South Haven.

Alternates—Malcolm Smith, Allegan; A. S. Youngs, Kalamazoo; LaVerne Rogers, Galesburg.

Dr. A. H. Rockwell moved, Dr. B. A. Shepard supporting, that the Secretary cast the ballot for the various nominations and declare them elected. Carried.

Having concluded the part of the program devoted to the election of officers and general business the meeting proceeded to the program of the day, in which about eighty members and visitors demonstrated an unusual interest.

Program:

1. Diagnosis and Treatment of Certain Obscure Infections with Special Reference to Arthritis.—Dr. Ernest E. Irons, Chicago, Ill.

Discussion opened by W. A. Perkins, Kalamazoo; Dr. J. H. Crosby, Plainwell; Dr. R. G. Leland, East Leroy, Mich.

2. Observations on Gastric Ulcers: A Study of Six Hundred Cases.—Dr. Christopher Graham, Rochester, Minn.

Discussion opened by Dr. R. R. Smith, Grand Rapids; Dr. O. H. Clark, Kalamazoo; Dr. A. W. Crane, Kalamazoo; Dr. Henry Hulst, Grand Rapids.

The meeting adjourned for the evening program, which included visitors from Chicago, Evanston, Grand Rapids, Battle Creek, and Rochester Minn.

Evening Program:

Social half hour at 6:30.

At 7:00 o'clock about 48 members and visiting colleagues enjoyed a banquet in the dining room of the New Burdick.

Toastmaster, Dr. Herman Ostrander.

Exaugural Address—Dr. C. E. Boys, Kalamazoo. Reminiscences—Dr. Hemmenway, of Evanston, Ill.

Toast—Hon. Walter Taylor, Kalamazoo.

Dr. C. H. McKain, Dr. Christopher Graham, Dr. E. E. Irons and Prof. W. E. Praeger, responded to invitations from the toastmaster, by impromptu remarks.

Dr. G. D. Carnes was not able to be present.

(Signed) C. B. FULKERSON, Secretary.

KENT COUNTY.

The Eleventh Annual Meeting of the Kent County Medical Society was called to order by the President, Dr. Boise, on the evening of Dec. 10th, at 8:30 P.M. Dr. DuBois made a verbal report as Councillor for the 5th District, in which he encouraged greater activity in discussions of papers. He also referred to the matter of not permitting lay visitors to attend our meetings, and suggested the advisability of some other place for our regular meetings.

Dr. Brooks made a verbal report for the Delegates to the State Meeting and reported in regard to the Committee appointed by the State Society to confer with physicians throughout the state to arrange a fee schedule for work under the Compensation Act. He also referred to a schedule of fees published in a recent number of the STATE JOURNAL.

Dr. Rowe reported for the Public Health and

Legislation Committee in which he referred to the several bills passed the last Legislature and also of some that would probably come before that body soon. Among these he mentioned the Pure Food, Odel Bill for the sterilization of weak minded and insane individuals, and of a bill pending that would allow Chiropractors in practice three years to continue.

Dr. Graves reported for the Public Health Education Committee in which he made mention of the work started a year ago, that of giving papers of general interest, before the various clubs, and the successful continuation of this. He also called attention to the meeting to be held in the Baptist Church on the evening of Dec. 21st, at which Dr. Sawyer was to speak.

Report of the Legal Representative, Dr. McBride. His work was very light, there having been only one case pending during the last year, that has not yet been settled. Two new cases were threatened, one for an infiltration following an injection of salvarsan; this case was finally dropped. The other suit was started for an alleged improper fixing of a fracture of the neck of the femur—this case was indefinitely postponed. The suits are usually the outcome of animosity existing between various physicians; this could be greatly overcome if the physicians would work more in harmony. Most of these suits are more "bluff" than anything else. The cases should be freely discussed before the Society.

Secretary-Treasurer's report. Dr. E. W. Dales. Cash on hand, Jan. 1st, 1913 \$125.25

Cash received during year:
Dues, Special Assessment and Bulletin Advertising 909.25

\$1,034.50

Total Expense during year 810.95

Cash and bills collectable 223.55
Number of members 154
Moved away during year 1
Died during year 4
New members elected 9
Number of meetings 15
Total attendance 553
Average attendance 42
Number of papers 25
Unpaid dues 19
Invited guests 11

Dr. Boise, the retiring president, after thanking the members for their co-operation during the year, read an address on Preventive Medicine.

Election of officers:

Dr. Alexander M. Campbell was nominated for the office of President and elected to the office by unanimous vote.

Dr. R. H. Spencer was elected Vice-President.

Dr. J. J. Fabian was elected Secretary-Treasurer.

Dr. E. W. Dales, Assistant Secretary-Treasurer.

Delegates to the State Society—J. D. Brook, C. C. Slemons, T. M. Koon.

Alternates—H. J. Pyle, R. Apted, A. J. Baker.

Defense League Rep.—G. L. McBride.

The following Committees were appointed for the ensuing year:

Board of Directors—D. Emmet Welsh, Chairman; Eugene Boise, B. R. Corbus, Ex-Officio, A. M. Campbell, J. J. Fabian.

Public Health and Legislation—T. M. Koon, Chairman; Louis Barth, C. C. Slemons.

Anti-Tuberculosis Committee—Ralph Apted, Chairman; A. V. Wenger, T. C. Irwin, C. H. Johnston, W. Northrup.

Public Health Education—H. W. Dingman, Chairman; C. S. Graves, F. Rutherford.

Library Committee—J. B. Whinery, Chairman; R. H. Smith, C. E. Hooker.

Entertainment Committee—F. C. Warnshuis, Chairman; B. H. Corbus, J. J. Fabian, Henry Vandenberg.

Visiting Sick Committee—F. J. Lee, Chairman; R. D. Joldersma, S. L. Rozema, F. C. Kinsey, H. S. Collisi.

The first regular meeting of the year of The Kent County Medical Society was held at the City Hall Wednesday evening, Jan. 14th, at 8 p.m. Dr. Alexander M. Campbell presiding. There were present 66 members.

Application of Dr. J. W. Shanks for membership was favorably voted upon.

Dr. U. J. Wile of Ann Arbor, delivered the address of the evening, his subject being "An Estimate of the Value of the Wassermann Test to the General Practitioner." Among the many instructive practical points brought out in the paper, he deplored the necessity for the use of the Wassermann Test in certain characteristic syphilitic skin and mucous membrane manifestations, i. e., all cutaneous and mucous patches. These should always be recognizable and positively diagnosed without the aid of laboratory tests. The indiscriminate use of the Wassermann Test in all cases tends to lessen the acuity of personal observation of the average man. It too often happens that the element of error in technic, and lack of infallibility of the test cannot always be excluded, these possibilities should always be taken into consideration.

No woman should be permitted to be engaged as a wet nurse without a Wassermann Test. Hereditary syphilis always gives a positive reaction, excepting occasionally in latent cases. The Wassermann Test should find its greatest sphere of usefulness as a guide to treatment.

Dr. Frieda Hirschberg read a paper on "The Practical Consideration of the Wassermann Test With Report of Cases."

Dr. Hirschberg illustrated her paper with diagrams and test tube demonstrations. She reported the results of 300 tests.

"The Complement Fixation Test in the Diagnosis of Gonorrhea," was the title of a paper read by Dr. Paul Miller.

A paper on "The Serum Diagnosis of Pregnancy with Report of Cases," was read by Drs. A. M. Campbell and J. N. Wenger. Dr. Campbell showed specimen of dermoid cyst removed from patient in which pregnancy was suspected and its possibility excluded by means of the Alderhalden Test.

The following physicians presented clinical cases and participated in the discussions: Drs. C. E. Hooker, C. H. Johnston, A. H. Williams, V. J. Moore, James Ardiel, W. F. Hake, Louis Barth, G. L. McBride, J. J. Fabian, H. J. Vandenberg, and R. D. Joldersma.

J. J. FABIAN, Sec'y-Treas.

LENAWEE COUNTY.

The annual meeting of the Lenawee County Medical Society was held in December, 1913, and the following officers were elected for the year 1914:

President—J. L. Spaulding, Hudson.

Vice-Pres.—Dr. G. M. Lochner, Adrian.

Sec'y-Treas.—F. A. Howland, Adrian.

Delegate to State Medical Meeting—A. W. Chase, Adrian.

Alternate to State Medical Meeting—O. Whitney, Jasper.

Member Medical Defense—Dr. L. G. North, Tecumseh.

The meeting was well attended and much enthusiasm manifested, and plans made for more extensive work during the coming year.

Dr. F. A. HOWLAND, Secretary.

On January 14th, 1914, a meeting of the Lenawee County Medical Society was held. This meeting was the liveliest meeting we have had in over a year; more real interest was shown and a larger attendance present than we have had present for some time.

Dr. M. R. Morden of Adrian read a very interesting paper on "Physical Therapy," and it was very generally discussed by the doctors.

Our February meeting promises to be even more attractive than the meeting just held as we have a very good program prepared, and it is going to be held in the best moving picture theater here and the address illustrated by lantern slides. This meeting will be held on the 18th of February at 3 P.M.

F. A. HOWLAND, Secretary.

ONTONAGON COUNTY.

The Ontonagon County Medical Society met at Elk Hotel, Ontonagon, at 2 P.M., with President F. W. McHugh in the chair. Seven members were present out of the total of ten.

A very able paper was presented by Dr. A. L. Swinton on "The Treatment of Infected Wounds." The paper was discussed by all the members present.

The next meeting of the Society will be held on the second Wednesday in March, our president, Dr. F. W. McHugh to have a paper.

(Signed) J. S. NITTERAUER, Secretary.

WAYNE COUNTY.

The following programs were carried out at the regular meetings of the Wayne County Medical Society:

January 5th, The Progress of Roentgen Therapy by Rollins H. Stevens.

January 12th, Toxicology, by Chas. B. Leonard and W. H. Allen.

January 19th, Thoracic Demonstration, by R. M. Ricketts, Cincinnati, Ohio.

On Monday, February 9th, Dr. Fred H. Albee will address the meeting on "Original Uses of the Bone Graft, a Report of 225 Cases."

C. P. CLARK, Secretary.

State News Notes

Dr. Carl H. Buckner, physician to the Ionia Reformatory, has been appointed by Gov. Ferris as a member of the State Board of Pardons.

Dr. F. G. Warner of Grafton has been appointed surgeon for the Mississippi Power and Transmission Co.

Dr. C. G. Robertson of Sandusky was married to Miss Florence S. Detweiler of Brown City on December 18th.

Henry E. Vaughan has been appointed as sanitary engineer of the Detroit Board of Health.

Dr. R. E. Mills of Boon was injured December 19th by the turning turtle of his automobile. The doctor sustained a fracture of several ribs.

Dr. L. J. Sebille of Elkton has located at Harbor Beach.

Dr. A. Patterson of Flint was convicted by a jury of having furnished an instrument which was used in performing a criminal operation upon a certain patient.

Dr. F. M. Ilgenfritz of Kalamazoo was elected County Physician by the Board of Supervisors.

Dr. F. S. MacDonald has been appointed Chief of Staff for the Wolverine & Mishawak Mining Co., Calumet. The doctor was formerly a practitioner of Detroit.

Dr. Krieger, formerly located at Newport, has opened an office at Rockwood.

The Grand Rapids Board of Health has appointed Dr. A. H. Edwards as Medical School Examiner.

Dr. Wm. Bell, for a number of years member of the Michigan State Board of Medical Examiners, sustained a stroke of apoplexy on January 3rd.

Dr. Seymour H. Stone of Boston delivered an address at the Annual Meeting of the Detroit Tuberculosis Sanitorium on February 19th.

Dr. L. W. Howe was elected secretary of the newly organized Anti-Tuberculosis Assn. of Coldwater.

Dr. John L. Burkhart of Big Rapids has been appointed by Gov. Ferris as secretary of the State Board of Health to succeed Dr. Dixon. The appointment took effect Jan. 1st.

Dr. V. C. Vaughan, Sr., Dr. R. L. Dixon, Dr. Guy L. Kiefer, addressed the meetings of the Jackson Sanitary Convention, which was held in Jackson on January 13th.

Dr. R. L. Dixon of the State Board of Health reports that of the 1,613 cases of smallpox that were reported during last year, 1,444 of the patients had never been vaccinated.

Prof. W. C. Hoad of Ann Arbor has completed a typhoid fever death rate chart covering the period from January 1st, 1904 to December 30th, 1912. This report shows that the highest death rate from typhoid was in 1908.

Dr. Reuben Peterson, Ann Arbor, addressed a public meeting in the Congregational Church at Lansing, January 8th. The subject of his address was "How a Hospital May Serve a City and How That Service May Be Improved." The paper will appear in an early issue of THE JOURNAL.

Dr. Chas. O. Jennings, Chief of the Medical Staff of Harper Hospital, was the guest of honor at a dinner given in Detroit on January 9th by the members of the Hospital Staff and other and professional friends. The doctor was largely responsible for the erection of a new Buhl memorial unit that was added to Harper Hospital.

The Southwestern Michigan Triological Assn. was organized in Kalamazoo on November 3rd. The officers of the Association are: Dr. E. J.

Bernstein, Kalamazoo, President; Dr. John R. Rogers, Grand Rapids; Dr. Winter, Jackson; Dr. Sleight, Battle Creek, Vice Presidents; and Dr. Wilfrid Haughey, Battle Creek, Secretary. The monthly meetings are to alternate in the cities of Jackson, Battle Creek, Kalamazoo and Grand Rapids.

The American Bankers Insurance Co. have reduced their examination fees from \$5.00 to \$3.00 and \$2.00.

The 12th International Congress of Ophthalmology will be held in St. Petersburg July 28th to August 15th. An invitation to the profession of Michigan has been extended by the President of the Congress through Dr. Haughey of Battle Creek, and to whom all inquiry for further information should be addressed.

A warrant for "Doctor" N. C. Ross, whose Chiropractor School was raided in Detroit during the graduation exercises on December 23rd, has been issued by the County Prosecutor of Wayne County. The warrant charges the Chiropractor with unlawfully issuing a medical diploma. The case will come up for trial at an early date.

Several hundred doctors enjoyed the annual New Year's Day reception at the Detroit College of Medicine. The laboratories of the College have been completely remodeled and equipped with the latest appliances for the making of laboratory examinations.

The Coldwater Physicians Club at its annual meeting on January 12th resolved to send monthly statements to their patients, and if no attention is paid to these, after three statements have been sent, to place the names of the debtors in the delinquent for the benefit of other physicians.

Since the Sand-filtration Plant was opened on Jan. 1st, 1913, the number of typhoid fever cases in Grand Rapids has been reduced from 613 in 1912 to 139 for the year 1913. The deaths in 1912 were 40, in 1913 20, or a reduction of 50 per cent.

Dr. Guy L. Kiefer entertained the members of the Council and a few invited guests at his home on January 19th. The genial host had prepared a dinner that appealed to all who participated, and the evening was spent in the discussion of the various problems that are confronting the medical profession of the State. The guests present were unanimous in their expression of their appreciation of the hospitality of Dr. Kiefer.

Miss Ernestine Randall Burr, one of the most popular women of Flint, died suddenly at the residence of her parents, Dr. and Mrs. C. B. Burr, on January 12th. Rheumatic paralysis of the heart, which developed following an illness six weeks previously was the cause of death. The illness of Miss Burr began with an apparently mild case of diphtheria.

Miss Burr had gained a reputation among her friends as a charming hostess and her entertainments for her friends were always among the foremost social events of the city.

The Genesee County Medical Society passed the following resolutions of sympathy:

"In behalf of the Genesee County Medical Society the officers and directors in meeting today extend to Dr. and Mrs. Burr deepest sympathy in their great bereavement occasioned by the loss of their daughter, Ernestine Randall Burr, a young

woman esteemed and beloved by all who knew her, for her sterling qualities, her filial devotion, and her sincere and loyal nature."

Correspondence

Paw Paw, Mich., Jan. 5, 1914.

To The Editor of THE JOURNAL:—

Permit me to congratulate you on the January edition of THE JOURNAL of the Michigan State Medical Society. I think it the best in matter of form, subject matter, and paper I have ever seen, not excluding any.

Very truly yours,

H. L. CHARLES, M.D.

Mount Pleasant, Mich., Jan. 1, 1914.

Dr. F. C. Warnshuis, Secretary:—

The January issue of THE JOURNAL has just reached me. I desire to congratulate you on its fine appearance. When you first changed to the present size I did not like it, the main reason being that the change was made other than at the end of the year. Your present issue completely convinces me that you did the right thing in changing the size. The paper, the print and the general makeup of this last issue are all excellent.

You understand as well or better than I how foolish and unbusinesslike it is to continue the JOURNAL and membership a minute after the paid subscription has expired. It teaches slackness, makes a lot of needless work for all the secretaries and gives a premium for dishonesty. Those who won't pay get five numbers for being dishonest, which loss has to be made up from the money paid by the prompt members. In order to force this matter to the attention of the Council I am reporting the fact that you are furnishing the magazine for five months after paid subscriptions have expired—an act that I believe is unlawful.

Yours very fraternally,
S. E. GARDINER, M.D.

Ft. Wayne, Ind., Jan. 6, 1914.

Dear Dr. Warnshuis:—

My attention has just been called to the January number of your JOURNAL which has just arrived, and I want to sincerely congratulate you upon the general excellence of the number. Mechanically, I hardly see how it could be improved upon, and the many illustrations are splendid. Furthermore, the scientific articles and the editorials are such as to make the members of your association proud of their JOURNAL. If you can keep up the pace and will carry no objectionable advertising, you will make every state journal editor hustle to keep up with you.

With cordial regards,

Sincerely yours,

ALBERT E. BULSON, JR., Editor.
Indiana State Medical Journal.

Chicago, Ill., Jan. 6, 1914.

Dear Doctor Warnshuis:—

Your January issue is great. I want to congratulate you on the splendid illustrations. A journal like you are getting out, combined with business ability, cannot help but force to the front. Not being a medical man, I am unable to comment upon the articles; but when I see names like Peterson and Judd among your contributors, I know that

your readers will appreciate what you are doing for them.

As ever, I remain,

Sincerely yours,

WILL C. BRAUN,

Business Manager, Journal of the A. M. A.

Norristown, Pa., Jan. 9, 1914.

Dear Doctor Warnshuis:—

Through the kindness of Dr. Welsh of Grand Rapids I have the opportunity of reading the MICHIGAN STATE MEDICAL JOURNAL. I have been an editor of a little county bulletin and can appreciate a good live journal.

Let me express to you the great benefit, cheer and encouragement I have received from the alert pages of your JOURNAL, so full of vim and vigor. Too frequently I think we underestimate our efforts and feel discouraged. On this account I wish to commend you and tell you to keep on, keep on.

Most cordially yours,

HOWARD F. PYFER, M.D.

Hancock, Mich., Jan. 7, 1914.

Dr. Frederick C. Warnshuis,
Grand Rapids, Mich.

Dear Doctor:—

Allow me to congratulate you on your January number both as to its outside dress and intrinsic value. Even the type of the title is an improvement.

Wishing you much success for the New Year and continued prosperity, I am

Fraternally yours,

ARTHUR F. FISHER, M.D.

Ionia, Mich., Jan. 14, 1914.

Dr. F. C. Warnshuis, Grand Rapids, Mich.

My dear Doctor:

First allow me to congratulate you upon the last issue of THE JOURNAL as being one of the finest pieces of medical journalism ever brought to my notice. Its contents, subject matter, illustrations and advertisements are withal extra fine. This JOURNAL is one every member of the profession should be proud of, and no Michigan medical man can afford to be without it.

With best wishes for continued success, I am

Very respectfully,

(Signed) H. B. KNAPP.

County Secretaries Department

SHALL THE PROGRAM OF THE COUNTY MEETINGS BE MADE UP OF HOME TALENT, OR BY INVITED GUESTS FROM OUTSIDE THE COUNTY?

When the Secretary for the Secretaries asked me to prepare a paper, he put the emphasis on the word short. I believe I have satisfied him in this respect if in no other.

We have difficulty in getting our members to read papers for our regular quarterly meetings, so much difficulty that I have said we have more modest doctors in Gratiot county than in any other county in the state. A few are always ready to prepare a paper, the balance are

of two classes: the one will promise to prepare a paper and not show up at the meetings at all and the other will refuse outright. We spend hours telephoning and writing, finally get some promises, have a good program printed and mailed, and then to our chagrin only one or two show up to read their papers. We have tried to have clinics with local talent, but these are rather difficult to manage or make up out of a general practice. Many private patients are reluctant to appear, and then the little local jealousies seem to make the doctors rather careful about showing their cases.

The Montcalm County Society gave their Secretary permission to put a member's name down for a paper without consulting him. This I think a very good plan, for when I lived in Montcalm, they seemed to have very good meetings. There is one advantage of having a program made up of our own members, we get a better discussion than when we have some one from outside; and a good discussion always adds to the interest of the meeting. The members are rather reluctant or modest about discussing a visitor's paper. We have, therefore, found that taken altogether we have a better attendance, a better program, and we believe a better satisfied membership by having some one from outside the county.

We would like to hear how some of the rest of you induce your members to prepare and read papers.

E. H. HIGHFIELD.

We hope that our secretaries will respond to the doctor's request and send us their experiences for publication in this department.

No county society has done its full duty toward the profession of the county unless it has given every eligible physician an opportunity to become a member of the organization. Regardless of personal feelings, every physician in the county who can comply with the qualifications for membership should be asked to affiliate. This should not only be done once, but repeatedly, and as often as necessary until every physician is a member. To this end we are lending your society our assistance by means of our membership campaign.

The work of the organizers who are calling upon eligible members of the profession and securing their affiliation was begun on December first. The holiday season necessarily compelled a period of inactivity, but the work was resumed on January 2nd, and at present writing 247 applicants have been elected to membership. The work will continue until the entire state has been covered.

The time consumed in the canvass of each county cannot be estimated. It is therefore difficult to inform you as to when you may expect the canvassers in your county. You may

rest assured that they will reach you in due course and then we bespeak your hearty co-operation.

With a material gain in membership your society should experience a stimulus that will bring about the holding of a series of successful meetings. Make it a point to see that this result is attendant upon the addition of a number of new members and thus cause your organization to enjoy to the utmost the benefits derived from organized efforts.

The minutes of the January meeting of the Council are contained in this issue. Make an extract of them and read it at your next meeting.

The dues are payable, and we recommend that your delinquent members be notified that on April 1st they will be placed upon the suspended list. The March JOURNAL will be the last one that will be mailed to any member whose dues are not paid before April.

THE JOURNAL desires to publish a report of every meeting that is held by your society. Will you not endeavor to see that we are furnished with such reports. We will appreciate your securing and sending to us the papers that are read at your meetings. THE JOURNAL can use them all.

Kindly do not neglect to report the changes in your membership. This is necessary in order that we may keep THE JOURNAL mailing list revised to date. It has occurred on several occasions that the first notice of a member's removal or death came to us from the Postal authorities who report their failure of being able to deliver THE JOURNAL to the addressee.

The annual elections that have been held by our various Societies have created several changes in the office of secretaries. To these new secretaries we extend our congratulations, and assure them of our willingness to co-operate and assist them in performing the duties of their office. Do not hesitate to write to us on any subject pertaining to organization work upon which you are in doubt. We are desirous of lending you every possible assistance.

Book Reviews

DISEASES OF THE NERVOUS SYSTEM. For the General Practitioner and Student. By Alfred Gordon, A.M., M.D., late associate in nervous and mental diseases at Jefferson Medical College. Second Edition. Revised and enlarged with one hundred and sixty-nine illustrations. Cloth, 617 pages. Price \$4.00. P. Blakiston's Son & Co., Philadelphia.

This is a work intended for the general practitioner and student. It is practical and surmounts the difficulty of securing an every-day working knowledge of a subject that has always been difficult. It is a plain and practical account of diseases of the nervous system. It supplies a want. The pathology, differential diagnosis, course and termination, prognosis, etiology, treatment and methods of examination are discussed in a clear and comprehensive manner.

The second edition describes the newer facts in a concise and at the same time in a complete manner. Each chapter has been enlarged upon, and treatment has received special attention in accordance with modern methods.

This book is a valuable addition to one's library. It merits a cordial reception.

PRINCIPLES OF SURGERY. By W. A. Bryan, A.M., M.D., Professor of Surgery and Clinical Surgery at Vanderbilt University, Nashville, Tennessee. Octavo of 677 pages with original illustrations. Philadelphia and London: W. B. Saunders Company, 1913. Cloth \$4.00 net.

This work accomplishes its purpose of placing the fundamental facts of surgery before the physician and student in a simple and logical way. It lays a firm foundation upon which one may build understandingly the immense amount of details met in the practice of surgery.

It is a book for the general practitioner because it presents the facts upon which surgical diagnosis and treatment rests. The general practitioner is in need of a text book giving this information regarding modern surgery, for usually the majority of surgical cases consult the medical men first. To advise his patients intelligently and wisely he must be conversant with the principles of surgery.

The field has been well covered. The work is admirably illustrated. It is a trustworthy guide. It is one of the most satisfactory books of its class.

MATERIA MEDICA, PHARMACOLOGY, THERAPEUTICS AND PRESCRIPTION WRITING. For students and practitioners. By Walter A. Bastedo, Ph.G., M.D., Associate in Pharmacology and Therapeutics at Columbia University. Octavo of 602 pages, illustrated. Philadelphia and London: W. B. Saunders Co., 1913. Cloth \$3.50 net.

Simple and practical therapeutics, the trend of the present day practitioner is well exemplified in this book—in most part the author's lectures upon these subjects at Columbia University. Practicality and usefulness of each preparation receives first attention. The chapter discussing digitalis at length is a feature and alone is of scientific value and interest.

Many of us are too prone to keep up on Materia Medica and Therapeutics by reading the circulars sent out by the various pharmaceutical houses. If instead we would from time to time purchase an authentic text book such as this one our therapeutic results would be more grateful.

There is nothing to criticize but much to commend. It accentuates the essentials and omits the unnecessary. It is a book for reference as well as for casual reading, it merits a cordial reception. Mechanical construction and illustratively it maintains the reputation of its publishers.

HISTORY OF MEDICINE, WITH MEDICAL CHRONOLOGY, BIBLIOGRAPHIC DATA AND TEST QUESTIONS. By Fielding H. Garrison, A.B., M.D., Principal Assistant Librarian, Surgeon General's Office, Wash-

ington, D.C., Editor of the "Index Medicus," Octavo of 763 pages, many portraits. W. B. Saunders Company, Philadelphia and London, 1913. Cloth, \$6.00, net. Half Morocco, \$7.50 net.

Here is a work that places in the hands of the profession a definite outline of the history of medicine together with a large number of important facts which are of use to him in his daily work and enriches his medical culture. Clear, concise, containing a mint of information; not a prose section of a compilation of figures and dates.

A study of the history and the lives of the leaders of our profession is a profitable past-time—one that should be indulged in by every physician and surgeon. It exerts a broadening influence upon such a student.

The author has covered the subject in a manner never before attempted. It is a periodic narration beginning with Egyptian medicine, and covering successfully the Sumerian, Greek, Byzantine, Mohammed, Jewish, Medieval Renaissance, 17th Century, 18th Century, 19th Century and 20th Century periods. At the same time the cultural and social aspects of each period is considered. In the appendices there is a complete medical chronology; Bibliographic notes for collateral readings on the histories of Medicine, Medical biography and histories of special subjects. A complete index of personal names and of the subjects covered completes the work.

It is a volume exhibiting a vast amount of painstaking and accurate compilation of facts and historical data. It should be in the library of every physician. Above all things do not neglect owning this work.

SURGICAL CLINICS OF JOHN B. MURPHY, M.D., At Mercy Hospital, Chicago. Volume II. Number VI. (December). Octavo of 186 pages. Illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Published Bi-Monthly. Price per year: Paper, \$8.00. Cloth, \$12.00.

This number completes the second volume of the Clinics of Dr. Murphy, and maintains the standard set by previous numbers. Foremost is the talk on Tuberculosis of the lung; production of artificial pneumothorax by injection of nitrogen, and Dr. Murphy's development of this method of treatment. This alone is of interest to every internist. The other case reports are: Bone cyst of the Radius, Pyelonephrosis, United Fractures, Ankylosis of the Elbow, Laminectomy, Undescended Testicle, Cholelithiasis, Student's Clinic and a list of cases demonstrated at the recent Clinical Congress.

The value of these clinics has been established and each number demonstrates their worth. If you have missed securing the past issues we recommend that you do not neglect subscribing for the third volume—they bring Murphy's Clinic to your very door.

Miscellany

THE "GREATER" FIELD OF ATOPHAN.

The striking and therapeutically so valuable selective action of Atophan and its tasteless derivative Novatophan upon the uric acid output of the organism and the regulation of the purin metabolism has been the subject of an already very long list of publications, chiefly from the pen of European clinicians and pharmacologists of note.

More recently, however, American scientific investigators, too, have been attracted to the study of

these most interesting substances and have in every way confirmed the earlier findings.

Prof. Otto Folin and Dr. Henry Lyman of the Biochemical Laboratory of Harvard Medical School, Boston, have contributed an article "On the Influence of Phenylquinolin Carbonic Acid (Atophan) on the Uric Acid Elimination" to the *Journal of Pharmacology and Experimental Therapeutics*, July, 1913, in which for the first time the effect of Atophan medication upon the uric acid of the blood is made the subject of thorough investigation. This has been made possible only by the introduction of the new and very exact colorimetric uric acid test of Folin and Denis. In every one of the six cases of gout in which Atophan was given under purin-free diet, the medication led to a pronounced increase in the uric acid elimination and a corresponding reduction of the uric acid content of the blood.

Prof. Howard D. Haskins of the Physiologic and Biochemical Laboratory, Western Reserve Medical College, Cleveland, reports in the September issue of the same publication under the title of "The Effect of Atophan and Novatophan on the Endogenous Uric Acid Excretion of Normal Men," the results of his experiments with twenty-one medical students who were apparently in good health and who had been kept on a purin-free diet for at least one week before Atophan or Novatophan were administered. Sixteen of these showed an increase of urinary uric acid excretion of over 200 milligrams, four a noticeable but lesser figure and one, no increase at all. The author concludes that the action of Atophan does not merely consist in stimulating the kidneys to abstract from the blood a greater quantity of uric acid than they otherwise would, but that the main effect of the drug is to drain uric acid out of the blood, leaving the uric acid content of the latter subnormal.

While both these investigations add still further scientific evidence to the superior qualifications of Atophan and its derivative as therapeutic agents in gout and other manifestations of the uric acid diathesis, it should not be forgotten that entirely independent of their uric acid "mobilizing" action, these substances possess marked analgesic, antipyretic as well as powerful antiphlogistic effect. This has been very conclusively demonstrated clinically by Prof. Klemperer of Berlin, who disposes of an experience covering the use of approximately 20,000 fifteen-grain doses in nearly 300 cases of acute polyarthritis treated at the Municipal Hospital, Moabit during the past two years (*Therapie der Gegenwart*, June 1913).

A most convincing demonstration of the powerful antiphlogistic effect of Atophan and its derivative has been furnished by Profs. E. Starkenstein and W. Wiechowski of the University of Prague in the entire suppression in guinea pigs treated with Atophan, of the violent chemosis following ocular instillations of essential oil of mustard (*Prager Medizinische Wochenschrift*, January 16th, 1913).

Atophan and Novatophan will therefore also be found of the greatest value in lumbago, muscular rheumatism, neuritis, otosclerosis and generally in all painful inflammatory conditions whether uratic or non-uratic in character.

LACTIC ACID FERMENT PREPARATIONS IN N.N.R.—Assertions that the lactic acid ferment preparations on the market are worthless caused the Council on Pharmacy and Chemistry to examine those admitted to N. N. R. While past examinations showed this class of preparations to be most unreliable, the present market supply was found to be satisfactory. The products examined were Fair-

child Culture Bacillus Bulgaricus, Lactic Bacillary Tablets, Fairchild, Lactampoules, Fairchild, Bacillary Milk, Fairchild, Bulbara Tablets, H. W. Co., Massolin, Schieffelin. (Jour. A. M. A., Dec. 6, 1913, p. 2084).

SANATOGEN.—The fundamental objection to Sanatogen is not its outrageously high price, but the attempt to ascribe to a mixture of casein and glycerophosphate powers not possessed by these ingredients. The claim that Sanatogen is a "nerve food" is an absurdity as is any claim that the casein in Sanatogen has a greater food value than the casein in ordinary milk. Physicians who have given fulsome puffs for Sanatogen are invited to study the claims which are made for it—the following being one: "* * it revivifies the nerves, promoting sleep and helping digestion. * *" (Jour. A. M. A., Dec. 6, 1913, p. 2085).

THE VALUE OF ECHINACEA.—While most extravagant claims are made for the drug, the Council on Pharmacy and Chemistry concludes that, on the basis of the available evidence, echinacea is not entitled to be described in New and Nonofficial Remedies as a drug of probable value (Jour. A. M. A., Dec. 6, 1913, p. 2088).

TEXAS GUINAN.—The Texas Guinan World-Famed Treatment for Corpulency (Texas Guinan Co., Los Angeles, Cal.) appears to be the latest venture of W. C. Cunningham, of Marjorie Hamilton's Obesity Cure fame. It is exploited by follow-up letters giving the experiences of Texas Guinan, an actress, and offering the preparation at a sliding scale of prices, ranging from twenty down to three dollars. From an analysis made in the A. M. A. Chemical Laboratory it appears that an essentially similar preparation may be obtained by mixing one pound of powdered alum with ten ounces of alcohol and enough water to make one quart. A second specimen which was examined in the Association's Laboratory contained no alum or alcohol and appeared to be a tragacanth preparation of the "vanishing lotion" type (Jour. A. M. A., Dec. 13, 1913, p. 2173).

COLLOIDAL PALLADIUM.—A preparation of colloidal palladium, under the proprietary name Leptynol, is proposed as a means of causing the absorption of adipose tissue. The preparation appears one of the many thousand proprietaries produced abroad in the past year and put on the market after meager experimental work (Jour. A. M. A., Dec. 13, 1913, p. 2179).

DOWD'S PHOSPHATOMETER.—According to its inventor this is a device "for taking the phosphatic index or pulse of the nervous system." Its originator Dr. J. Henry Dowd, M.D., Buffalo, N. Y., writes enthusiastically of his instrument and of "Comp. Phosphorus Tonic." The phosphatometer is a scientific absurdity which pretends to determine the amount of phosphate in the urine and thus to measure "nerve metabolism." (Jour. A. M. A., Dec. 20, 1913, p. 2258).

ANOTHER "CANCER CURE."—Denver newspapers advertise that the International Skin and Cancer

Institute of Denver claims to have a cure for cancer. The "cure" is exploited by one John D. Alkire. No doubt those afflicted with cancer, and those who believe themselves afflicted with cancer, will flock to Denver for the "cure." The actual victims of the disease will of course die, but there will be the usual number of recoveries from non-malignant sores that will be heralded as "cures" and thus will make the venture a profitable one. To the honor of Denver it may be said that some of its newspapers refused the advertisement (Jour. A. M. A., Dec. 20, 1913, p. 2248).

PA-PAY-ANS (Bell).—An analysis, included with the report of the Council on Pharmacy and Chemistry rejecting the product, failed to find one of the constituents claimed to be present in the preparation—the constituent after which the medicine appears to have been named, namely papain (Jour. A. M. A., Dec. 27, 1913, p. 2314).

THE MECHANISM OF THE STOMACH AFTER GASTROENTEROSTOMY.

Outland, Skinner and Clendening (*Surgery, Gynecology and Obstetrics*, August, 1913) have made a careful X-ray study of the mechanism of the stomach after gastroenterostomy, as a result of which they have come to the following conclusions:

Gastroenterostomy, if properly done, is a drainage operation.

After gastroenterostomy, if the stoma is at the lowest part of the stomach in the erect position, the food leaves the stomach almost exclusively by the gastroenterostomy opening.

Under these conditions the stomach is emptied with great rapidity.

Gastroenterostomy should be done only in the presence of pyloric stenosis, or pyloric spasm due to duodenal or gastric ulcer.

The gastroenterostomy opening should be made large and placed as close as is permissible to the pyloric antrum.

In cases in which the gastroenterostomy opening does not quite drain the stomach, the food leaves both by means of the stoma and the pylorus. Even in these cases, however, the stomach empties itself faster than normal.

The clinical failure is after gastroenterostomy are probably due to the cases of faulty implantation of the stoma.

PITUITARY EXTRACT IN OBSTETRICS.

Rowland in the *Maryland Medical Journal* for July, 1913, says pituitary extract is efficient to finish abortion, when begun, and to induce labor in conjunction with other remedies. It is inefficient alone.

It will usually cause advancement of the head, if the cervix is half dilated.

Its most brilliant successes are obtained in the last half of the second stage, where it will frequently save delivery by forceps.

It probably causes little or no damage to the child.

It should probably not be used in toxic cases, especially those with high blood-pressure.

Glass and tube drains should never be allowed to rest against a large bloodvessel (*e. g.*, the epigastric, the internal iliac). They may cause fatal erosion. —*American Journal of Surgery*.

The Journal

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Vol. XIII

GRAND RAPIDS, MICHIGAN, MARCH, 1914

No. 3

Original Articles

TRANSPPOSITION OF THE UTERUS AND BLADDER IN THE TREATMENT OF EXTENSIVE CYSTOCELE AND UTERINE PROLAPSE.*

THOMAS J. WATKINS, M.D.

CHICAGO.

The word "transposition" is used in preference to "interposition" because it expresses more clearly than does "interposition" the essential features of the operation under consideration. "Interposition" suggests a change in the position of the uterus only. There is, however, a change in the position of both uterus and bladder, the altered position of the bladder being the more important feature.

Cystocele is hernia of the bladder through the vesico-vaginal septum and is generally the result of injury at childbirth with subinvolution. The protrusion of the bladder and the senile changes in the tissues which occur after the menopause gradually increase the size of the hernia. The hernial opening, in extensive cases of cystocele, extends sagittally from the pubes to the cervix and transversely across the entire anterior portion of the pelvis. The anterior vaginal wall is usually so much thinned by stretching and laceration that no definite borders of the hernial opening can be palpated. A urethrocele with thickening of the mucous membrane over the body of the urethra is often coexistent.

Uterine prolapse is hernia of the uterus. In prolapse of the uterus the broad and uterosacral ligaments are elongated, the vaginal canal dilated, the perineum relaxed and usually lacerated. The cervix and the body of the uterus are frequently enlarged from passive congestion, edema and hyperplasia. The cervix may be cystic and eroded as a result of laceration, infections and friction.

A cure of the cystocele necessitates firm closure of the hernial opening through which

the bladder protrudes. This is accomplished by interposition of the body of the uterus.

A chief factor in the cure of the uterine prolapse consists in twisting the broad ligaments, thus very much diminishing their length. This rotation places the fundus anteriorly near the pubes and tilts the cervix up into the hollow of the sacrum. When the large prolapsed uterus is forward beneath the bladder the congestion and edema soon disappear, atrophy takes place and the uterus is thus much decreased in weight. These are important factors in affording permanent relief.

The technic of the operation was illustrated by numerous stereopticon slides. The chief features were:

(a.) *Separation of the vaginal wall from the bladder.*

This can be done with entire safety by blunt dissection with the scissors if the points of the scissors are kept continually in contact with the anterior vaginal wall. The width of separation of the handles of the scissors is determined by the amount of resistance encountered and by the size of the cystocele. In starting the blunt dissection care should be taken to strike the plane of fascia, which is surprisingly distinct between the bladder and vaginal wall. Thus blood-vessels are not injured, dissection is facilitated, and wound secretion is minimized. Experience has induced me to make the amount of separation less than formerly, as a wide separation sometimes causes complications and is not essential to success.

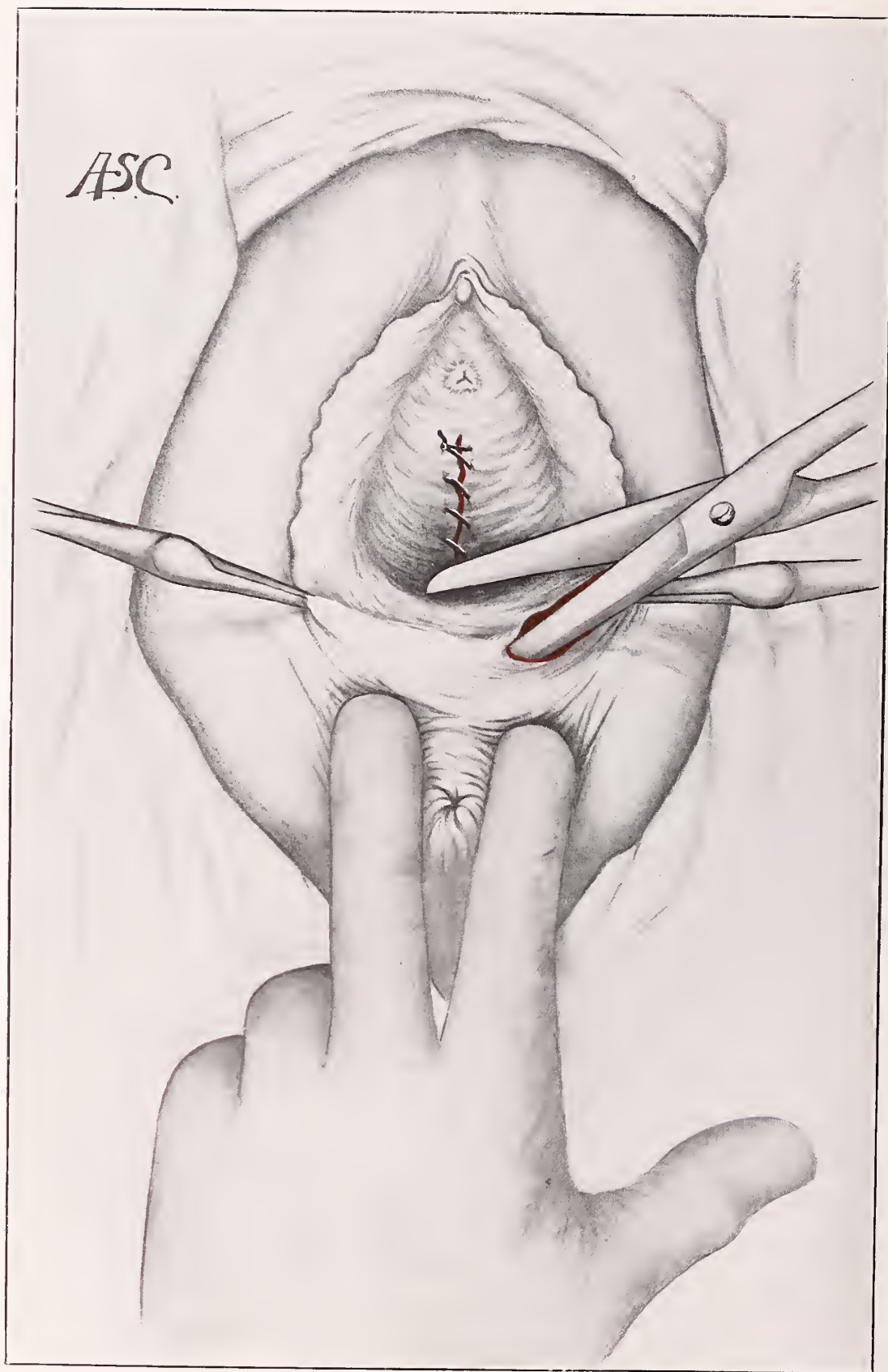
(b.) *Separation of the bladder from the uterus.*

This is also safely done with scissors. Care is used to find the plane of fascia between the bladder and cervix, which is as distinct as that between the bladder and vagina. In this dissection the points of the scissors are kept continually pressed against the cervix. Final separation is made with the finger when necessary.

(c.) *Incision of the peritoneum.*

A long narrow retractor is placed in such a manner that the bladder is displaced forward and the anterior uterine wall covered by peri-

* Read before the Section on Gynecology and Obstetrics at the 48th Annual Meeting of the M. S. M. S. held in Flint Sept. 4-5, 1913.



PERINEORRHAPHY.

1. "A transverse incision is made along the muco-cutaneous line."

toneum is exposed. The peritoneum is now easily picked up with tissue forceps and incised.

(d.) *Delivery of the body of the uterus into the vaginal canal.*

This is done by successively grasping the anterior uterine wall until the fundus is obtained. By exerting traction upon the fundus the uterus is easily brought through the opening.

(c.) *The suture.*

One continuous chromicized catgut suture fastens the uterus to the vaginal wall and closes the vaginal incision. The fundus of the uterus should be sutured near enough to the urethra to make impossible a partial recurrence of the cystocele. Any noticeable hypertrophy of the vaginal mucous membrane over the body of the urethra should be excised before the suture is introduced. Otherwise it will protrude on standing and produce some distress. If a urethrocele is present the suture should be passed through the vaginal flap so that when tied it will draw the urethra up into its normal location. In cases of very large cystocele some of the redundant tissue is excised, but enough is left to insure broad surfaces for approximation. Continuing backward with the suture the wound made by the original transverse incision is at times closed sagittally to lengthen the vagina and displace the cervix further backward and upward.

Before the first tie is made in the suture the body of the uterus should be pushed back into the wound sufficiently to guard against strangulation, but not through the peritoneal opening.

If the cervix is much hypertrophied, lacerated or eroded, a portion of it should be amputated. This can often be accomplished quickly and satisfactorily by excision of the anterior lip of the cervix. It is occasionally necessary to make a high amputation of the cervix.

If the operation is done during the child-bearing period the patient should be made sterile by amputation of a portion of each Fallopian tube.¹

If the uterus is very large part of it should be excised. This modification of the operation is described by the author in *Surgery, Gynecology and Obstetrics*, II, 654, 1906.

PERINEORRHAPHY

The operation is completed by thorough repair of the perineum.

TECHNIC.

A transverse incision is made along the mucocutaneous line. Any scar tissue is removed by denudation with scissors.

The edges of the vaginal tissue are caught

to either side of the median line with forceps. The dissection is now made with a Mayo dissecting scissors. By delicate manipulation of the scissors the plane of fascia is found which separates the vaginal and rectal walls. After this plane of fascia is exposed the two walls are very easily and safely separated as far as desired without producing any bleeding. The scissors dissection is easily extended into either sulcus. The flap should now be elevated and care should be used to see that the dissection extends sufficiently high on either side. The dissection should extend to the upper border of the levator ani. The vaginal flap is now incised along the median line its entire length so as to expose the levator ani muscle and fascia, to facilitate placing the sutures and to prepare for excision of superfluous tissue.

This illustration does not show as deep a wound as should obtain. The suture is also somewhat defective. All bleeding vessels should now be ligated, especially over the rectocele.

SUTURE.

The wound is preferably closed in two layers. The first suture approximates the levator ani muscle and fascia in the median line. The second suture unites the mucous membrane and skin and dips down into the muscle and fascia.

A good exposure of the pubic portions of the levator ani and fascia is the most important feature of the perineorrhaphy. This may be accomplished in one of two ways, viz.:

1. Under the guide of the finger this part of the muscle is grasped with a bullet forceps on either side, as described by Dorsett, and is brought into view by rotating the handle so as to displace the muscle toward the median line and outwards.

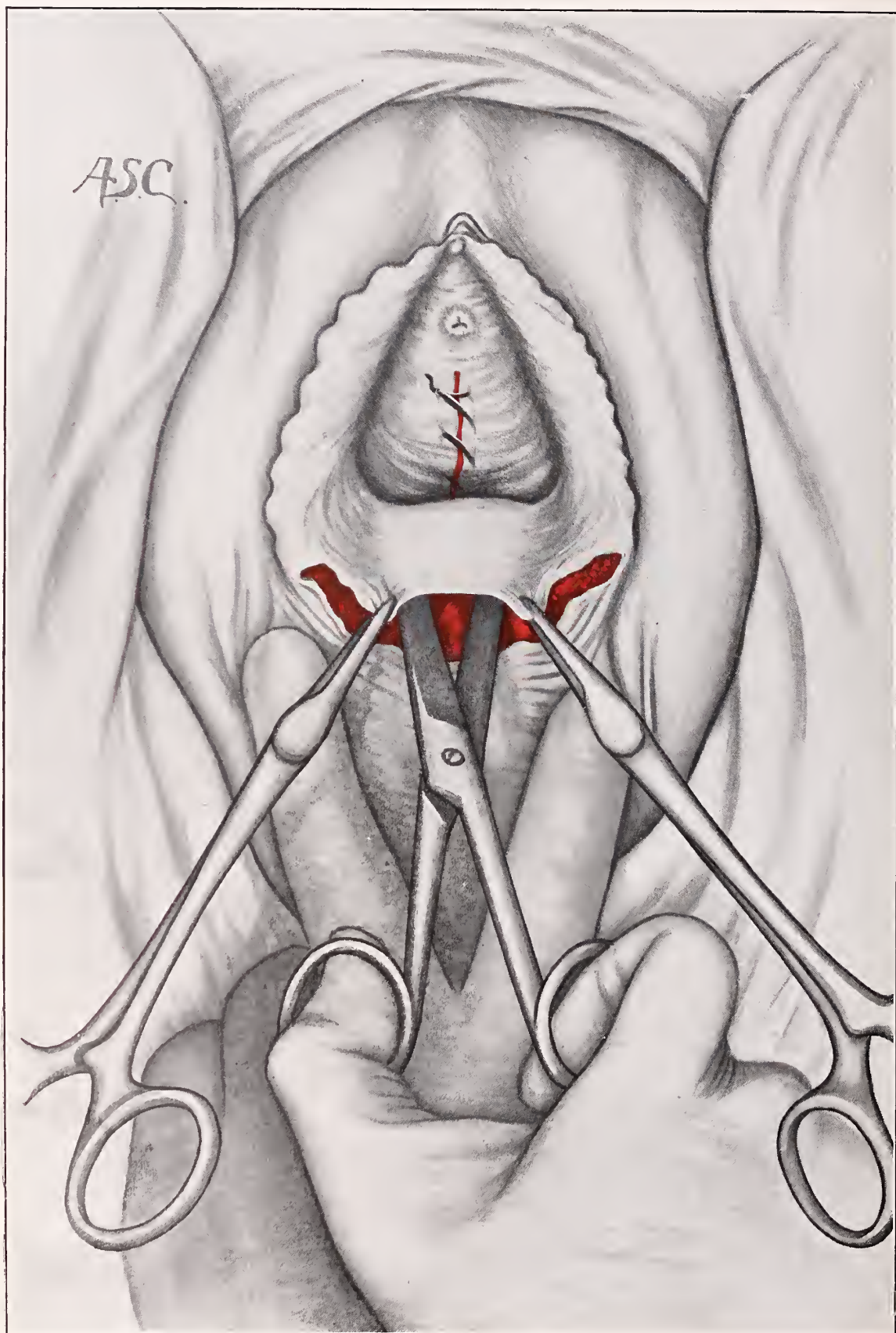
2. The blunt hook on the handle end of a Simon vaginal speculum is placed so that the skin edge of the wound in the median line is retracted rather firmly backwards. This puts the muscle and fascia on either side on tension and brings them into view so that they can be easily sutured.

In cases of large rectocele the former method is preferable, in other cases the latter plan is advised.

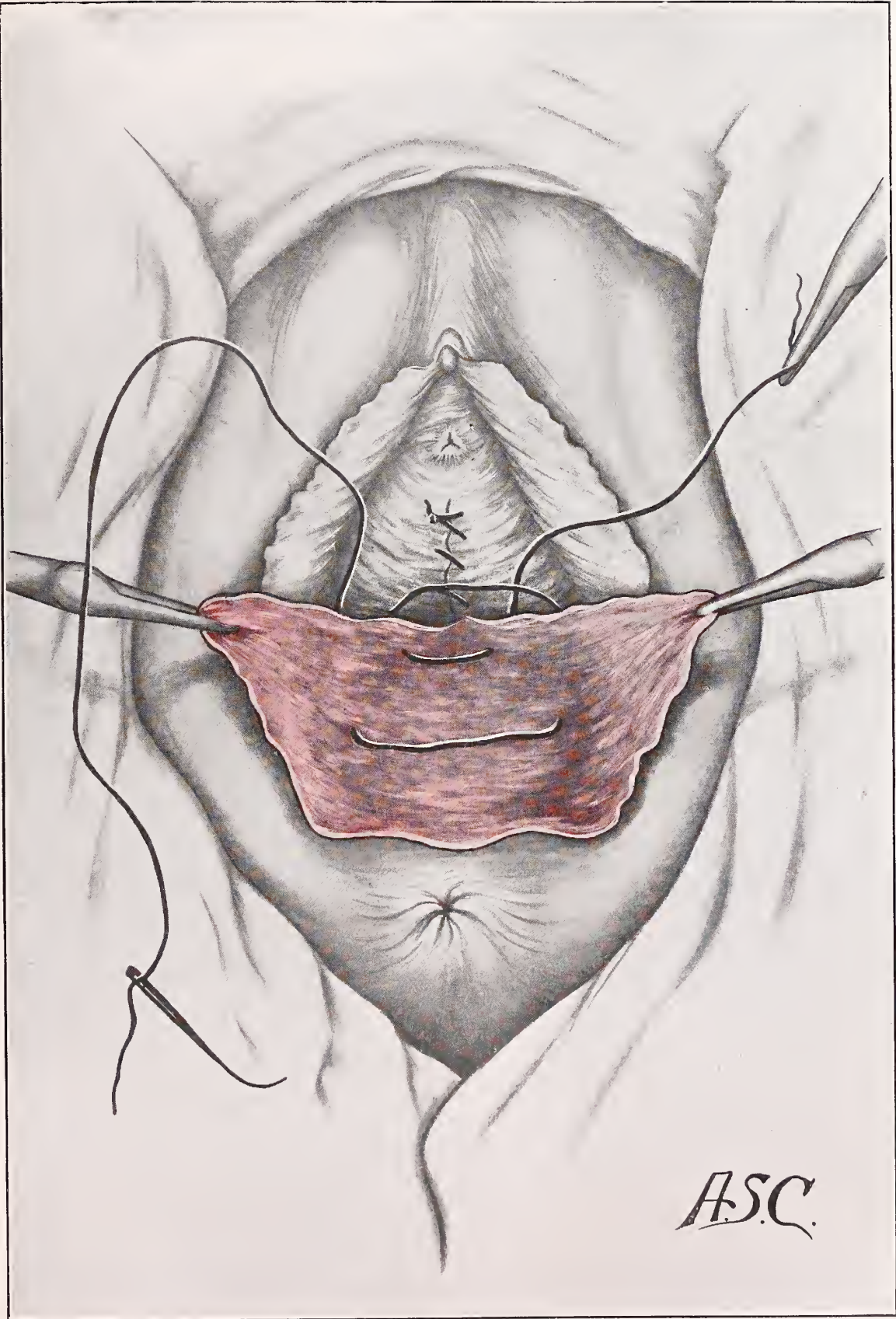
The "first suture" is entirely buried. It should include deep bites of the muscle and fascia on either side. Injury to the rectum is avoided by placing the sutures well to the side and by displacing the rectum backwards with a blunt instrument or small gauze stick sponge while the first part of the suture is being placed.

The first suture should entirely displace backwards and upwards the rectocele and cover it as shown in Fig. 4; that is, the suture should close the hernial opening of the rectocele.

1. For illustrations of the prolapse operation see *Amer. Jour. of Obst.*, vol. LXV, No. 2, 1912.



2. "Care is used in inserting the scissors to keep the points pressed against the vaginal wall."



3. "The suture is inserted deeply into the levator and muscle and fascia on either side."

The suture in Fig. 5 shows how the loops of the "second suture" should be inserted obliquely so that the perineal body with each loop of the suture is drawn forward and inward to its normal location.

The tension upon the suture should be only enough for approximation of the surfaces. Much tension increases pain, strangles and cuts the tissues.

Fig. 6 shows the operation completed.

A surprisingly small amount of bulging of the anterior vaginal wall results. Conjoined palpation impresses one that the uterus is left but little more anteverted and flexed than is often the case in a normal individual. On cystoscopic examination the posterior wall of the bladder shows some convexity over the region of the interposed body of the uterus.

PERSONAL EXPERIENCE.

The author's experience with this operation dates from January 28, 1898. The number of cases operated is approximately two hundred fifty.

The cystocele has not to my knowledge recurred in a single instance. It is a mechanical impossibility for the cystocele to recur if the operation is properly performed. A cure of the cystocele is the important part of the operation because the extensive cases are usually found after the menopause, at which time the bladder is the only actively functioning organ involved in the operation.

A few of the patients (probably 5 to 10 per cent.) have had some recurrence of the uterine prolapse. In three patients the fundus of the uterus protruded after a considerable interval. These patients were cured by excision of the protruding part of the uterus and suture of the wound. In one case, a small senile uterus, the cervix and body protruded parallel to the vulva.

Drs. Mayo report a similar recurrence in their practice. One would expect a larger number of recurrences of the uterine prolapse as these patients often have a general abdominal ptosis and it is impossible to repair the hernia of the uterus with mechanical precision without obliteration of the vaginal canal. Some recurrence of the uterine prolapse is not particularly disturbing, because excision of the protruding part and suture of the wound is easily done and gives good results.

COMPLICATIONS.

A considerable percentage of the patients have had some vesical symptoms due either to a pre-existing cystitis or to catheter cystitis. In only one patient has this difficulty been persistent, due I believe to a previous chronic cystitis.

A few of the patients have had slight post-

operative elevation of temperature for a few days, due to retained wound secretion which became decomposed from contact with vaginal bacteria. This retained secretion always escapes spontaneously and normal temperature results.

A number of points learned by the writer as a result of difficulties encountered during operation and recurrences consequent to operation are deemed worthy of emphasis.

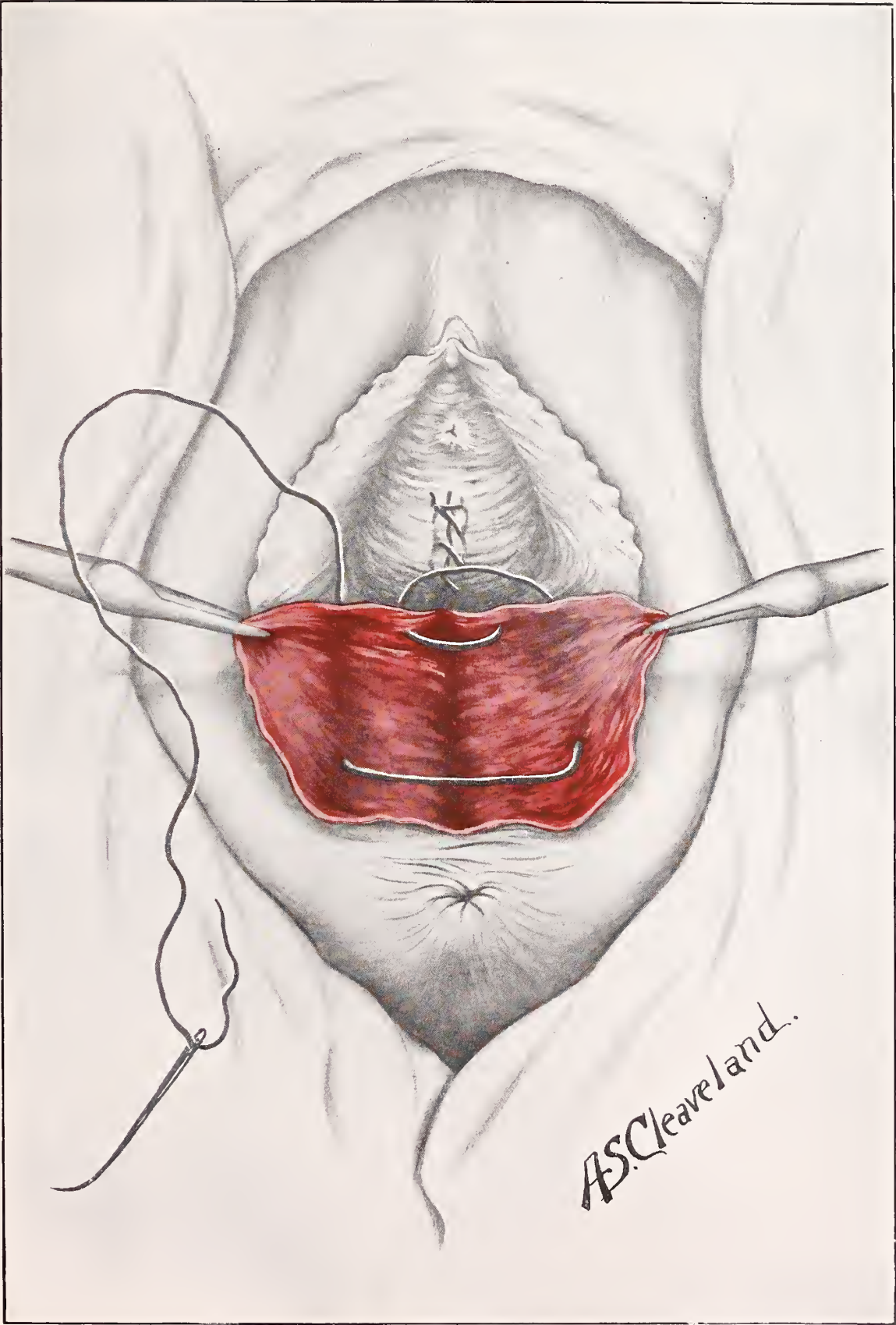
1. Blunt dissection with the scissors along easily found planes of fascia saves untold difficulties with hemorrhage. In earlier operations this dissection was needlessly extended far laterally between the bladder and uterus, with the result that the ureters were endangered and considerable unnecessary bleeding occurred. The wide separation also predisposes to retention of wound secretion and infection. We therefore do not agree with Stockel that widely extensive division of the tissues between the bladder and uterus is desirable.

2. After the bladder is separated the insertion of a narrow, long retractor between the bladder and uterus allows a clear view of the peritoneum over the fundus. This can then be incised without danger of injury to the bladder or intestine. Without the assistance of the retractor this step in the operation is frequently difficult and dangerous. Injury to the bladder with the scissors complicated two operations. In one of these a preceding inflammation made the injury unavoidable; in the other instance the technic was at fault. Closure of the torn bladder wall was easily accomplished by means of a purse string catgut suture. Uneventful recoveries followed.

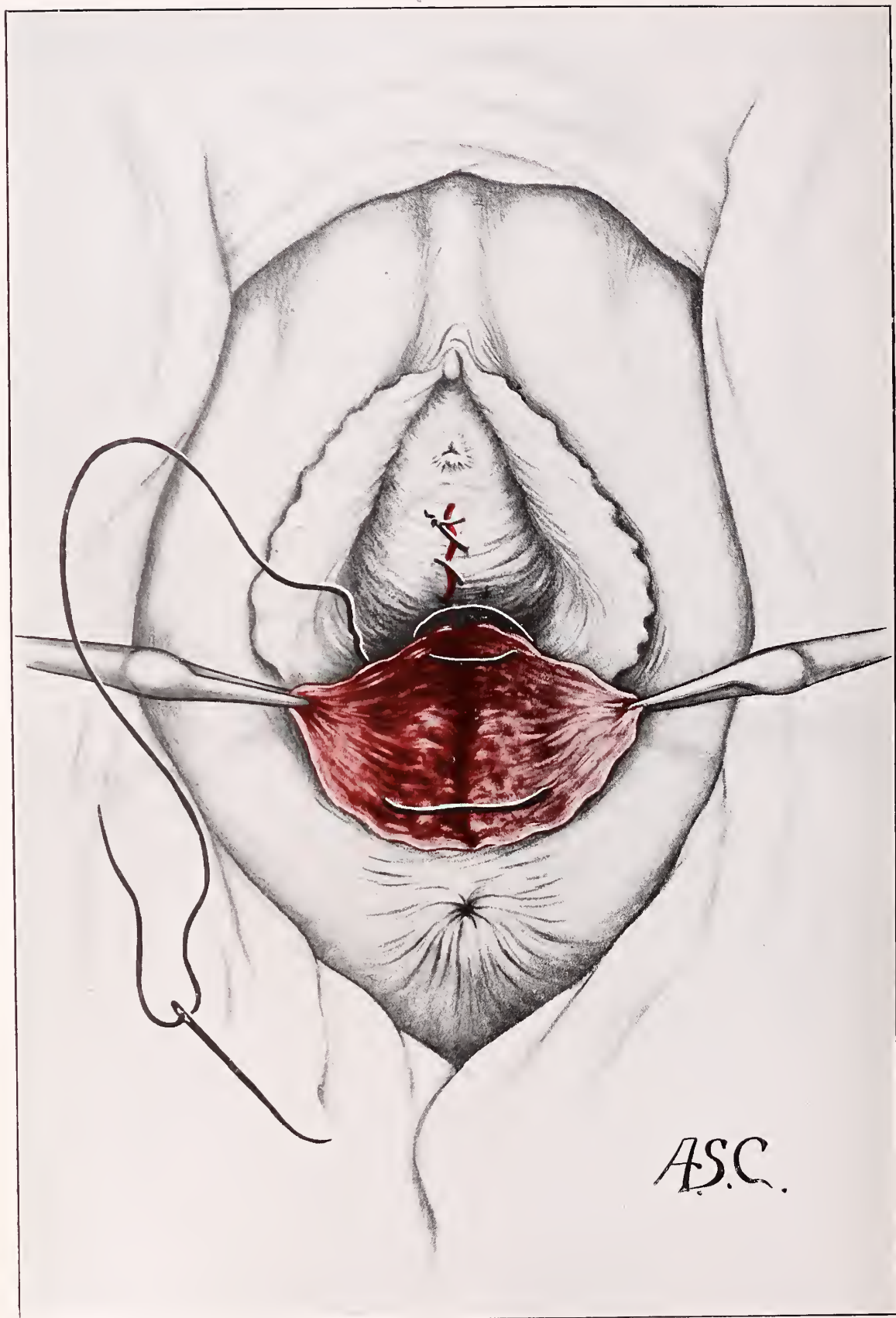
3. If the uterus is very large, the broad ligaments very long, the cervix much hypertrophied or eroded, an excision of a wedge-shaped portion of the anterior wall of the uterus or a high amputation of the cervix is essential to a good result.

4. The occurrence of hemorrhage with accumulation of blood either between the uterus and bladder or between the uterus and anterior vaginal wall, as encountered by Liechtenstein, need rarely occur if separation is made along fascial planes as described by means of blunt dissection with the scissors. Should there be any bleeding, sutures placed deeply through the cervix on either side will include the vaginal branches of the uterine arteries and stop the hemorrhage.

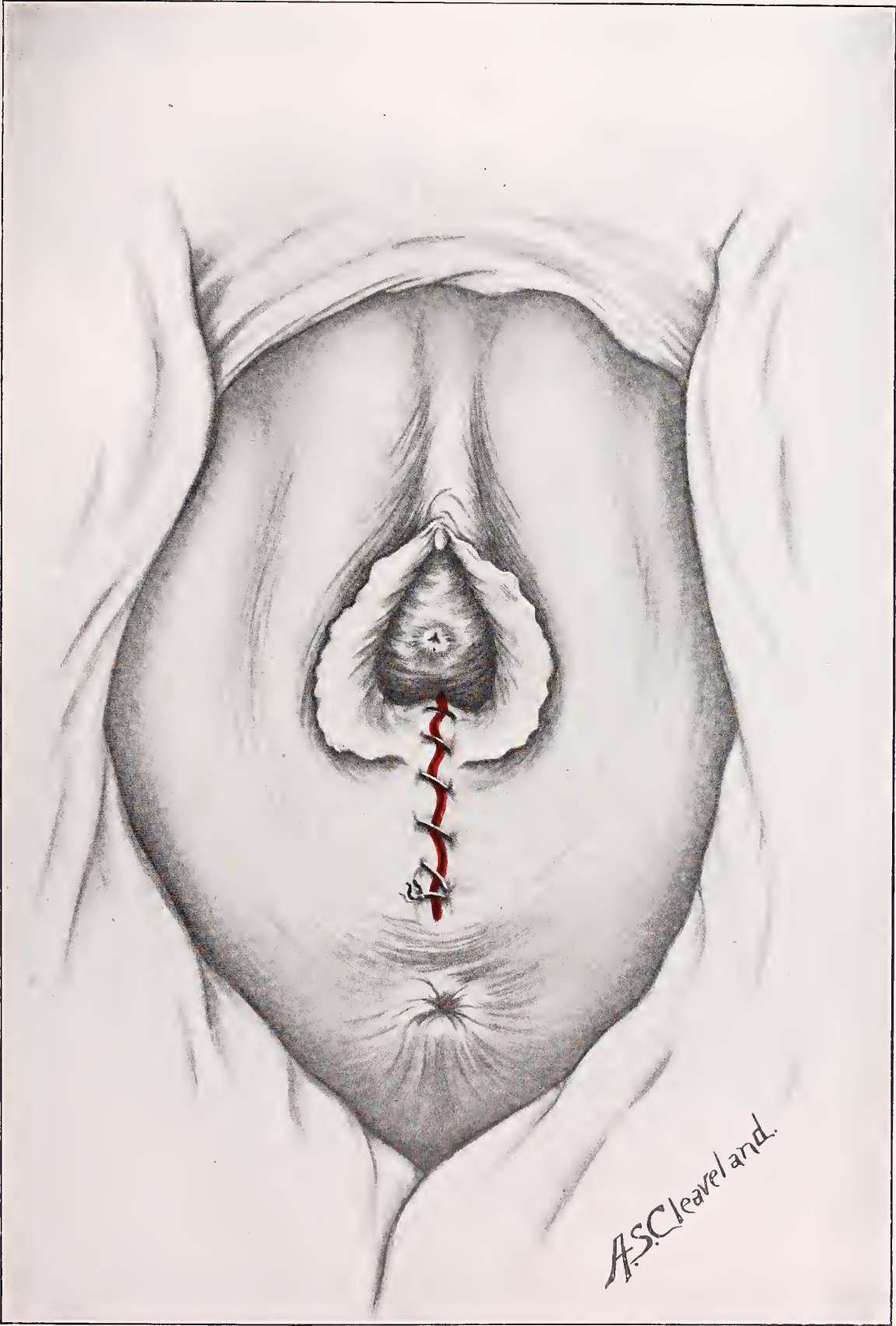
5. Some elevation of temperature will occur in occasional cases as it is impossible to avoid some retention of wound secretion, contamination with vaginal bacteria and possibly colon bacilli. The use of a gauze drain, we believe, tends more to increase decomposition than to prevent retention of wound secretion. When fever occurs we have found that elevation of



4. "The suture is passed deeply a number of times through the muscle and fascia."



5. "Broad surfaces of the muscle and fascia are brought together from either side between the vagina and the rectum."



6. "The entire wound is closed with one or two continuous chronicized catgut sutures."

the head of the bed and the use of moist dressings over the vulva is soon followed by drainage of an offensive secretion and consequent normal temperature.

6. When the bladder and uterus are transposed the forces which tend to produce a recurrence of a prolapse of the two organs oppose each other. Any tendency to recurrence of prolapse of the bladder tips the uterus further forward, twists the broad ligaments more, and thus elevates the uterus in the pelvis; any tendency to prolapse of the cervix elevates the body of the uterus and thus raises the bladder, which in its new position rests upon the posterior surface of the uterus.

104 So. Michigan Blvd.

HOW THE SMALL HOSPITAL MAY BEST SERVE THE COMMUNITY.*

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I desire to express my appreciation of the invitation extended me to address you upon hospital matters. For it certainly is a privilege to have an opportunity of discussing a subject which has occupied a great portion of one's time for over twenty-five years. And I believe it shows the trend of the times that hospital affairs should be considered of enough importance to warrant a public meeting. And let me say here that only in an indefinite way am I familiar with the particular problems which confront this community and its hospital. While at first glance this may seem unfortunate, from another viewpoint it has its advantages, since my very lack of knowledge will tend to absolve me from intentionally criticizing your institution or its relations to your city. Therefore, I ask your indulgence, if what I am about to say implies a criticism. To point out faults where one is not thoroughly familiar with the facts in the case would be presumptuous and that is farthest from my intention. Moreover, since the entire hospital problem here and elsewhere is in a period of evolution, what appears to me wrong may turn out to be right and vice versa.

Things having to do with hospitals are so numerous and varied as to limit the discussion in the time at our disposal to certain phases of the subject. Since this evening we are particularly interested in a small hospital situated in rather a small city, numerically speaking, I have elected to discuss how the small hospital may best serve the community.

THE SMALL HOSPITAL.

Perhaps a word may be necessary as to what

constitutes a small hospital. When does a hospital cease to be small and become one of the larger hospitals? The definition of what is large and small in this connection must of necessity be somewhat arbitrary and always open to argument. Until hospitals have been standardized according to the amount or quality of the work they are doing, we must arrange hospitals into different groups according to the number of beds they have at their disposal for the care of the sick. And in estimating the size of different hospitals it is obviously necessary that comparisons be confined to the same kind of hospitals. For example, we have but the remotest interest this evening in hospitals for the insane, be they large or small. The same may be said of hospitals devoted to the care of tuberculosis, epilepsy, cancer, et cetera. Even when we arrange hospitals into groups according to the kind of work they are doing, it is rather difficult to decide upon the dividing line between a small and large hospital. While we at once agree that a hospital of twenty beds is small and one of three hundred is large we are not so certain in what category to place the hospital with one hundred twenty-five beds. For our purposes it is sufficient to say that a hospital with less than one hundred active beds may be considered small, while if the institution has one hundred beds or over it is either large or on its way to becoming large.

There is more than at first appears in this arranging of hospitals into groups according to size. While there are fundamental principles applicable to the management of all hospitals, great or small, in many respects the greatest efficiency is reached in hospitals of unequal size by an entirely different kind of management. Failure to realize this and the attempt to fasten upon the small hospital the intricate managerial machinery of the larger institution has led in more than one instance to confusion and disaster. And failure, when it involves the management of an enterprise not undertaken for gain, but to afford relief to the sick and suffering is to be regretted far beyond the ordinary business failure.

HOSPITALS OF TODAY.

In a general way every one knows that there are more hospitals in his community or state or the country over than there were, say ten or fifteen years ago. It is only when he studies the figures that he becomes amazed at the enormous development of hospital accommodations during the past forty or fifty years. In 1873 there were in this country approximately 149 hospitals with 35,453 beds. Today "there are in the United States 6,665 institutions on record for the care of the sick with a total capacity of more than 600,000 beds."¹ It has

*Address delivered at Lansing, Michigan, January 8, 1914.

1. Modern Hospital.

been estimated that these huge figures represent an investment in lands, buildings and equipment of not less than one and a half billion dollars and an annual outlay for maintenance approaching two hundred fifty millions. The rapid development of the country during this period with its accompanying increase of population explains to some extent the above figures. Changes in our standards of living, the tendency of the population towards cities and towns with its resulting overcrowding and congestion, the large influx of foreigners unable to withstand the stress and strain of an advanced civilization, all of these have tended to increase the ratio of dependants such as the insane and the feeble-minded who must be cared for in appropriate institutions. But other factors, much more powerful, are responsible for the great increase in hospital beds during the period referred to. During the past forty years there has been a complete change in the practice of medicine and surgery, particularly the latter. Forty years ago operations were performed only as a last resort and only submitted to under protest, so great was the resulting mortality and morbidity through septic infection. Once the idea was grasped that wound infection was due to something carried from the outside, there appeared the most elaborate apparatus for the sterilization of everything coming in contact with the wound. This apparatus was expensive and better handled in an institution than in a private home. The people were educated to the hospital idea until it was considered a matter of course that one should go to a hospital if an operation was to be performed.

Forty years ago only the poor and dependent were treated in hospitals. When once the advantages of hospital treatment were demonstrated people of moderate means and the rich demanded hospital accommodations. To supply this demand the older institutions built pavilions for private patients. When new hospitals were erected provisions were made for the care of pay patients, as well as for the very poor and so-called charity cases. Not long ago I visited a hospital in Chicago where the most elaborate accommodations had been provided for rich private patients. I forget the sum paid for one elaborate suite of rooms with a private bath—a hundred or hundred and fifty dollars a week—the exact amount is of no more importance to the patient probably than it is to our argument. The point I desire to emphasize is that people of moderate means and the well-to-do have insisted upon hospital accommodations when they found that their chances of recovery were better when treated in hospitals.

HOSPITALS OF ENGLAND.

It is interesting to note in passing that the same condition does not hold in England, as Osler has recently brought out in an address before the British Hospital Association. In that country with the exception of charity hospitals and those devoted to the care of the insane or patients suffering from the infectious diseases, hospitals are supported entirely by subscriptions and bequests of the charitably disposed. With very few exceptions the London and provincial hospitals do not admit into their wards, save in emergency, any but those who can not pay medical fees. This condition of affairs is so different from that in this country, where we have been wiser in our care for a not inconsiderable part of the sick of the country that I will quote a portion of Dr. Osler's address. He says: "If John Hodge has acute appendicitis he is taken to a beautiful hospital with all modern advantages. He is put into a big airy ward and spends his convalescence on a balcony surrounded by all the advantages the hospital administration can give. What happens to Lady Clare Vere de Vere? When she has acute appendicitis she is taken to a stuffy house, which has been transformed into a nursing home and operated upon in a back room, transformed into an operating theater. No wonder she hates doctors, nurses and the medical profession. Such experiences have alienated very largely the upper classes from the profession of science and medicine. Many nursing homes are admirable and up-to-date but many are not; in fact not one can take care of a patient as well as the general hospital."

Now all this has a distinct bearing upon the development of the small hospital throughout the country and has to do with our subject of how this same small hospital may best serve its own particular community. It must be borne in mind that the hospital, large or small, owned and maintained by the municipality is not under consideration at the present moment. We are speaking of the small hospital erected by means of private donations derived from one or many sources, and maintained by an endowment in whole or in part or from contributions from the citizens together with income derived from charges made to patients treated in the hospital. It is obvious that such a hospital will best serve the community by an adjustment of its machinery, whereby the very best treatment shall be furnished patients within its walls. Incidentally in many ways it may serve the community but only after the prime reason for its existence, the care of the sick, has been satisfied. It must provide accommodations for all classes of the community, the rich as well as the poor.

These accommodations need not necessarily be elaborate, but should be such as to insure comfort and well being, so necessary to the sick person in his or her struggle toward recovery.

THE FINANCIAL VIEWPOINT.

I trust I may be pardoned if I approach the problem before us from its monetary side. The question of money in connection with the alleviation of suffering is always more or less repugnant. How many, many times have I heard physicians speak of their profession enthusiastically but deplore the fact that they had to send bills or be bothered with patients' accounts. I remember the story of an old doctor in a small community beloved by everyone. He labored among his people early and late and was devotion itself. But he never would send a bill and never, if he could help it, paid one. A certain rich summer resident had called the doctor in to attend a member of his family in rather an acute illness. Having been informed of the old doctor's custom of never presenting a bill, he insisted that an exception be made in his case since he felt very grateful for the professional care his family had received. But the old doctor put him off from time to time and finally under compulsion said if the man must pay him something he could pay his office rent which was somewhat behind. The rich man thanked him, hunted up the landlord who received him with much rejoicing after he had told his tale and handed him a bill of twelve hundred dollars with the remark that according to his best recollection the doctor had once paid him twenty dollars on account. Now, a physician may be respected and admired for his many good qualities, but if he does not pay his bills he is somewhat of a failure. In the same way a hospital, small or great, to accomplish the most good must be run on business principles even if its mission be the care of the sick. If the hospital be adequately endowed its lot may be an easy one, since, like a professional man with an outside income, it can do more or less as it pleases, making up its deficit at the end of the year from the interest on its endowment fund. Yet in spite of its pecuniary advantages, such an institution often is financially embarrassed. The ease with which the money comes not infrequently makes for careless and extravagant management, or it becomes too ambitious and spreads out too much. More often it fails to give a good account of the money showered upon it in that it fails to care for the poor to the extent its endowment warrants. To fail in this respect is almost, if not fully as bad, as to fail in other ways.

But only exceptionally is the small hospital endowed. Usually it may be considered fortu-

nate if its buildings have been paid for. Its two sources of income are the moneys received from its patients and from private donations. The usual, but in my opinion the wrong way of administering the finances of the hospital is to treat all moneys received as income for meeting the expenses of the institution. The reason why this is a wrong method is at once apparent, if we imagine ourselves in the position of donors. A., for instance, is perfectly able and willing to give one hundred dollars annually toward the support of the hospital provided, and here is the point—provided this sum is used for meeting the hospital expenses of some poor and deserving person or persons. He is unwilling, however, to have a portion of his one hundred dollars used to reduce the hospital expenses of his friend B., who has occupied a room in the hospital and is well-to-do. It is perfectly possible to determine in a well managed hospital the per capita cost of caring for patients. Just as in a business enterprise, every expense of maintenance should be included in arriving at the estimate, not the mere cost of food, help, laundry and surgical supplies, but interest on the investment, taxes if there are any, as well as insurance. Then the private patients should have this sum apportioned amongst them according to their ability to pay. If it be found advisable to make the ward rate at or slightly under the per capita cost of maintenance, the charge for the use of the private rooms should be made higher. Only those who have had experience in the management of a hospital fully realize the attempts that are made by those amply able to pay to secure a reduction in hospital rates. Physicians are not altogether blameless in this regard. For in spite of the advantages accruing to them from a well equipped general hospital where they can treat their private patients, they are loath to see any increase in hospital rates. This opposition to an increase is perfectly justifiable if such increase be necessitated by careless or extravagant management. Otherwise it is far better for the physicians to stand off and allow the hospital to be a judge of its own financial affairs.

Charges for "city cases" are always a bone of contention between the city and the general hospital. The policy of most city governments where there is no municipal hospital is to drive hard bargains with a hospital for the treatment of its sick dependent poor. While the hospital management is desirous of caring for this class of patients, it can ill afford to secure a contract at a loss. If city patients be treated at a loss it is unfair to the pay patients who must make up the deficiency. Having had some experience with city officials and their methods of driving sharp bargains I know the arguments usually employed. If the hos-

pital is not willing to accept a certain sum for the care of city charges, the city will say that it will either make arrangements with another hospital or build a hospital of its own. The first threat can be easily handled by having an agreement between the two hospitals, if there be more than one, that under no circumstances will either care for city cases at a loss. In these days of trusts, gentlemen's agreements, et cetera, it may be I am guilty of advocating something illegal. If so I will take the risk. Morally, if not legally, there can be no harm in agreeing that you will not do business at a loss. The second, the building of a municipal hospital, need alarm no one. When the city becomes large enough so that it can save money by building and maintaining its own hospital, it will do so and not before. No city hospital can be built without the consent of the taxpayers and they will have to be shown before they will consent to the erection and equipment of a hospital building, the employment of a superintendent, matron and the rest of the help necessary to the running of a hospital, in order to save a dollar or two a week on the cost of caring for city patients in a privately owned or endowed hospital.

If the books of a hospital be properly kept it will not take long to convince intelligent people that the hospital is being economically managed and that the charges for patients are not excessive. Some sort of statement of this kind is absolutely necessary, when the hospital rates are raised, either because of the higher cost of living or for some other reason. This brings up the desirability of having endowed beds in the institution. Endowed beds are unquestionably of an advantage to a hospital in that it enables the institution to do more for the poor. But there is a business side even to this question. People who were able to endow hospital beds in perpetuity twenty-five years ago for five thousand dollars certainly got the best of the bargain. To agree to maintain a bed for two hundred fifty dollars a year, the interest on \$5,000 at 5 per cent., is to agree to make up the deficit from some other source. Fifty such donations in a fifty bed hospital would mean that the hospital management would have to beg to keep the institution going. I am afraid many institutions regret what was done twenty-five years ago in the way of endowed beds. Five thousand dollars looked big when the hospital was running behind, but that sum does not look so large now when the increased cost of living today is taken into account. Of course donations can not always be looked at in the light of mere dollars and cents. It may be that the effect of a gift may mean much to an institution even if the latter has to make good a deficit on an endowed bed. I simply wish to call attention

to the fact that an agreement for a certain sum of money to do a certain thing forever may mean hardship for those who succeed us.

Donations to the hospital, as I have intimated, should be used to care for the poor and needy unless they have been made for other specific purposes. If the hospital has been erected through the generosity of one or more donors, the hospital management is in duty bound to so manage the institution that at least the interest on such a gift be devoted to charity purposes. For donors do not have it in mind to give money in order that private pay patients alone may be cared for comfortably. This means higher hospital rates so that there will be a surplus for charitable work after all expenses have been paid. In the same way yearly donations should be considered as trust funds to be used for the care of the poor and indigent. If the man who donates one hundred dollars a year receives a report at the end of the year showing how his money has been expended, how one or more worthy sick persons have been helped with this money, he will be satisfied and feel inclined to equal or increase his subscription the next year. If, however, he feels that his donation has gone to pay the salaries of hospital employees, his enthusiasm slowly oozes away and with it his yearly hospital donation.

CONTAGIOUS DISEASE DEPARTMENTS.

Recent advances in the care of patients with contagious diseases have made it possible for the small hospital to be immensely helpful to the community. Contagious disease hospitals where patients with diseases, such as scarlet fever and diphtheria are cared for in separate buildings, are not only expensive to build but also to maintain. In Paris, in England and at Providence, Rhode Island, contagious disease patients have been cared for upon a different plan with very successful results. The idea underlying this plan of treatment is that the so-called contagious diseases spread through direct contact and are not air borne. By careful medical asepsis, by which is meant the sterilization of everything which comes in contact with a person having a contagious disease, it is possible to treat patients with the different diseases under one roof without danger of cross infection. For instance, the nurse in charge of a diphtheria patient is taught how she can care for such a patient and not carry the disease to another patient and how not to contract the disease herself. When she enters the patient's room she protects her dress from accidental contact by putting on a gown. If she gives the patient a drink of water the glass is immediately boiled, the gown is removed and she washes her hands thoroughly with soap and running water. If she treats a patient

with another kind of contagious disease, provided she has been conscientious in carrying out the rules of medical asepsis, she will not carry contagion from the first to the second patient. Time does not permit of the elaboration of this subject. Suffice it to say that this method of caring for patients with contagious diseases has been tried long enough to show that it is a success.

If patients with different contagious diseases can be treated under the same roof, it becomes perfectly possible for the small hospital to maintain such a department for the city, the latter of course paying for the initial cost of the building and equipment. Even if the city pay the regular hospital rates for the care of its patients in the contagious department, it will be a much cheaper proposition than maintaining its own hospital, provided the general hospital be economically managed. Moreover, the city as a whole would be the gainer, since the money and time lost through house quarantine would be saved.

Last August the city of Ann Arbor bonded itself for the sum of twenty-five thousand dollars to be given to the University for the erection of such a hospital. A twenty-four bed contagious pavilion is nearly completed and will soon be in operation along the lines set forth above. Such a department has long been needed in a University city where contagious disease is quite prevalent on account of the student population. The city of Ann Arbor wisely concluded not to go into the hospital business, preferring some one else to do the worrying.

HOSPITAL MANAGEMENT.

It goes without saying that to be a success a hospital, small or large, must be efficiently managed. It is not supposed that the board of trustees or the board of managers will give up a great deal of time to the details of management. In fact in most instances it is best they should not. Details can be and should be cared for by the hospital's executive officer, who has been elected on account of his or her expert knowledge of hospital matters. The managing board, collectively and individually, will have their spare time fully occupied in considering the general policy of the hospital, listening to reports from the executive officer and the chief of staff and deliberating upon whether their recommendations be adopted or turned down. I once heard a genius described as a man who had a faculty for getting other people to do his work. The board of managers of a hospital should be geniuses in the sense that they should have the wisdom to employ some one of experience to do their hospital work for them. Good executives are not easy to obtain but they can be found. They

are worth their weight in gold and should not be interfered with when it comes to details. Within reason it is not a question of salary, it is a question of securing an efficient manager—a cheap, inefficient hospital superintendent is a most expensive luxury. There may be a saving of twenty-five dollars a month on salary, but the loss through inefficiency will run up into the hundreds.

A good hospital superintendent with a love for his work will be full to running over with new ideas and schemes. All may not be expedient or wise, but if one out of three be valuable it will be a great gain for the institution. The managing board of a hospital would better look around for a new executive when the latter fails to bring forward new ideas concerning the policy or management of the hospital. Such a person may not be loafing on his job but he surely is not doing all he should.

THE CLINICAL STAFF.

One of the things I did hear about your hospital was that it had no clinical staff. If this be true I can only say that the hospital managing board does not fully appreciate the definition I have just given of genius. If I may be excused for a slang expression, the doctors are the easiest marks of all when it comes to getting them to work for you. They will take care of your sick poor for nothing. They will lecture to the nurses of the training school, incidentally treating the pupil nurses free of charge when they are ill. They will, if they are worked right, take long journeys at their own expense to study hospital methods suitable to the institution they are interested in. And all of this and more they will do if they are handled right and by that I mean if they be given some recognition. The time is too short to go into the arguments for and against a clinical staff in a small hospital. This much, however, I may say after an experience of over twenty-five years with all kinds of hospitals, large and small and after serving on the staffs of a good many hospitals—so far as the advantages are concerned, the real advantages of having access to a large amount of material from which he can learn and acquire experience, the man holding a staff position in a small hospital does not possess them. It is mostly an honorary position so far as the actual work is concerned. But the doctor, be he surgeon or internist, earnestly desires a staff position, so why not give it to him if thereby his co-operation and loyalty can be secured? I can assure you the advantages are all on the side of the hospital. The management of a hospital must look to the medical profession for advice upon certain questions. They do not themselves possess the special knowledge

and where else will they get it? It is certainly not difficult to realize that this advice will be more freely given if the person consulted be a member of the hospital organization and not merely a man who is bringing his patients to a specialized boarding house where he can treat them.

Frankly, I can not conceive of a hospital's wasting its opportunities by not appointing a clinical staff. It is vitally essential to the hospital to have the support of the best physicians of the city. While I am a firm believer in an open hospital, offering the privileges of the hospital to every reputable physician, I would certainly advocate the barring of all doctors with shady reputations and unfortunately there are always such men in all professions. The staff know such men where the hospital management may remain in ignorance of the true state of affairs. There is no particular incentive to a physician to warn the hospital authorities when his only interest in the hospital comes from the fact that he treats his patients there.

The size of the staff and the manner of its selection are mere matters of detail, easily worked out in each community. Each department of medicine should be fully represented. There should be frequent meetings of the staff where hospital matters can be discussed. There should be numerous committees, such as a committee on the training school, hospital diet, apparatus, et cetera. There should be a chief of staff, elected by the staff and confirmed by the board of managers. As executive officer of the staff one of his functions would be to meet with the board of managers as occasion may demand and voice the opinions of the staff regarding various hospital matters. The most successful small hospitals I have known have been those where there was the greatest co-operation between the board of managers and the staff of the hospital. The success of the institution was due to enthusiastic striving for a common object, the good of the hospital.

I believe in members of the staff of a small hospital being elected for short terms, say, for one or two years. If a member proves his unfitness for the position or is disloyal to the institution he fails of reappointment. The managers of a hospital need have no fear of losing patronage through the appointment of a staff. If a hospital offers a physician certain hospital accommodations he needs in his practice, he will avail himself of them whether he is a staff member or not. In fact he will redouble his efforts to be in favor with the hospital with the hope of securing a staff appointment.

THE HOSPITAL'S RESPONSIBILITY.

Perhaps one of the most serious difficulties confronting the small hospital is the regulation of the kind of work performed in it. It is not expected that there will be no deaths in the hospital. The most desperately ill patients are brought to the hospital, because they can receive better care there. If quite a proportion of such patients do not survive the public does not lay it up against the hospital. But this is not the case with patients who enter the hospital for elective operations and do not survive. To the friends the patient has seemed perfectly well. Then suddenly they learn he or she is dead and has died from an operation. If too many such deaths occur in an individual hospital the institution is criticized, perhaps unjustly, but still a prejudice develops against it. A hospital can not shirk the responsibility for what goes on within it. It can not say, "we are simply renting a room to this physician so that he can operate upon his patient." To the public the patient was in the hospital and died from the effects of the operation. Thus it behooves the hospital to know exactly what is going on. Not a few hospitals have been obliged to exclude certain men who were ambitious to do surgery, but lacked the necessary training and skill to do it successfully. There is some danger in a hospital making a contract for a certain class of surgical patients, unless it reserve the right to have some say as to the kind of person who shall do this surgery. I do not mean that a hospital should borrow trouble and be too apprehensive. I mean, aside from the fact that no institution or person for the sake of the patient, wants to see bad work being done, the reputation of a hospital and to a certain extent its success depends upon the kind of work done inside its walls. While it can control the work of its nurses and employees, and while it can control the work of its staff by seeing that no incompetent men are appointed, it is a much more difficult problem to control outsiders. Better far is it for the hospital to lose the patronage of a reckless and unskilled surgeon than to assume responsibility for what he does.

The clinical staff can be safely left to devise a plan by means of which the hospital shall be equipped with all the modern appliances, so necessary today in the diagnosis and treatment of disease. To endeavor in this day and age to administer to the sick without proper laboratory equipment is to attempt the impossible. The hospital should early recognize the desirability of being so equipped that the physicians of the city will be obliged to say to their patients that the only way such and such a disease can be investigated and treated is by

going to the hospital. This saves duplication of expensive apparatus in physicians' offices and above all redounds to the credit and reputation of the hospital.

THE TRAINING SCHOOL FOR NURSES.

Another way in which the hospital can be of great service to the community is through its training school for nurses. Even the smallest hospitals soon establish training schools, since the expense of employing graduate nurses is too great for both hospital and patients. No part of the hospital is more important than the training school, yet none is so apt to be neglected. Until state registration of nurses became a law hundreds of splendid young women were most shamefully misused. They gave their two or three years of service to the hospital without adequate return in the way of instruction. In some hospitals the training school curricula were deplorable, with the result that badly trained nurses were turned loose on an unsuspecting public. Now all this has been or will be changed by the State Board of Registration for Nurses. The pupil nurses must be well grounded in the principles of nursing, else they will fail to pass the Board's examination. A few failures from a given hospital and the news will quickly spread so that the hospital will receive few applications for admission to its training school. It will either be obliged to improve the quality and quantity of its instruction or else employ outside nurses which usually from a financial standpoint it is unable to do. Competition will also force the hospital, large or small, to give the pupil nurses a square deal in other ways than providing adequate instruction. The great increase in hospitals and training schools has made it much more difficult to secure pupil nurses than was the case fifteen years ago. To make the supply equal the demand the hospital must house and feed its nurses well. No longer is it a good policy for a hospital to overwork its pupil nurses to the point of exhaustion.

In working out the problems of the training school the advice and help of the clinical staff are indispensable. By their co-operation much unnecessary routine work can be abolished. We hear a great deal today of efficiency in various walks of life. We read in the magazines of how photographs of bricklayers and other workmen have demonstrated unnecessary movements, the doing away with which has made all the difference between profit and loss. Doctor Dickinson of Brooklyn is working on the same problem in connection with surgical operations. The same methods are bound to be employed with reference to pupil nurses. Take for instance the utility room or the linen room on a hospital floor. Each of

these rooms may have been so situated that the nurses are obliged to travel a number of unnecessary miles in the course of the day in order to care for their patients. This is a pure waste and should be remedied. One recording of temperature, pulse and respiration may not consume a great deal of time. To make the same records of twenty or fifty patients every two or four hours when this is unnecessary means a great waste of energy. The hospital staff physicians will co-operate and cut out useless things if their attention be drawn to the need.

If time permitted, I might speak at length upon another important function of the small hospital through which it may be of inestimable value to the city—social service work. We are learning that the work of the hospital is not completed when the poor patient is discharged improved or well. By returning to the same surroundings, the same condition which demanded hospital treatment may appear again. Co-operation between the hospital and the city along the lines of social service work is perfectly possible and is productive of a great deal of good.

In conclusion, let me say that I am fully aware that I have only skimmed the surface of my subject. In fact, what I have had to say has only been suggestive. If I have been instrumental in the slightest degree in stimulating any one to fill in the outline of my sketch I shall be more than satisfied.

ARTIFICIAL PNEUMOTHORAX IN PULMONARY TUBERCULOSIS.

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During a trip abroad three years ago the writer first saw a number of cases of pulmonary tuberculosis treated in Vienna by the induction of artificial pneumothorax. Since that time many favorable results have been obtained and great confidence in the operation manifested by physicians in many parts of the world. The treatment has been adopted by the most important Sanatoria in England as well as on the continent and also by a considerable number of similar institutions in this country.

It has long been recognized that rest is one of the most important measures in the treatment of pulmonary tuberculosis and rest is unquestionably the most reliable means for reducing activity in the diseased lung as well as for producing a favorable influence upon the temperature, cough, expectoration, headache and general toxemia incident to the disease.

HISTORICAL DATA.

It is well known that the advent of spontaneous pneumothorax or a pleural effusion

often produces improvement in the condition of the lung and, vice versa, that the withdrawal of a pleural exudate in pulmonary tuberculosis is often distinctly harmful to the patient. Impressed by such observations, Car-

set of a pneumothorax. He also suggested the production of artificial pneumothorax in certain cases by puncturing the costal pleura in order to transmit atmospheric pressure to compress tuberculous cavities.

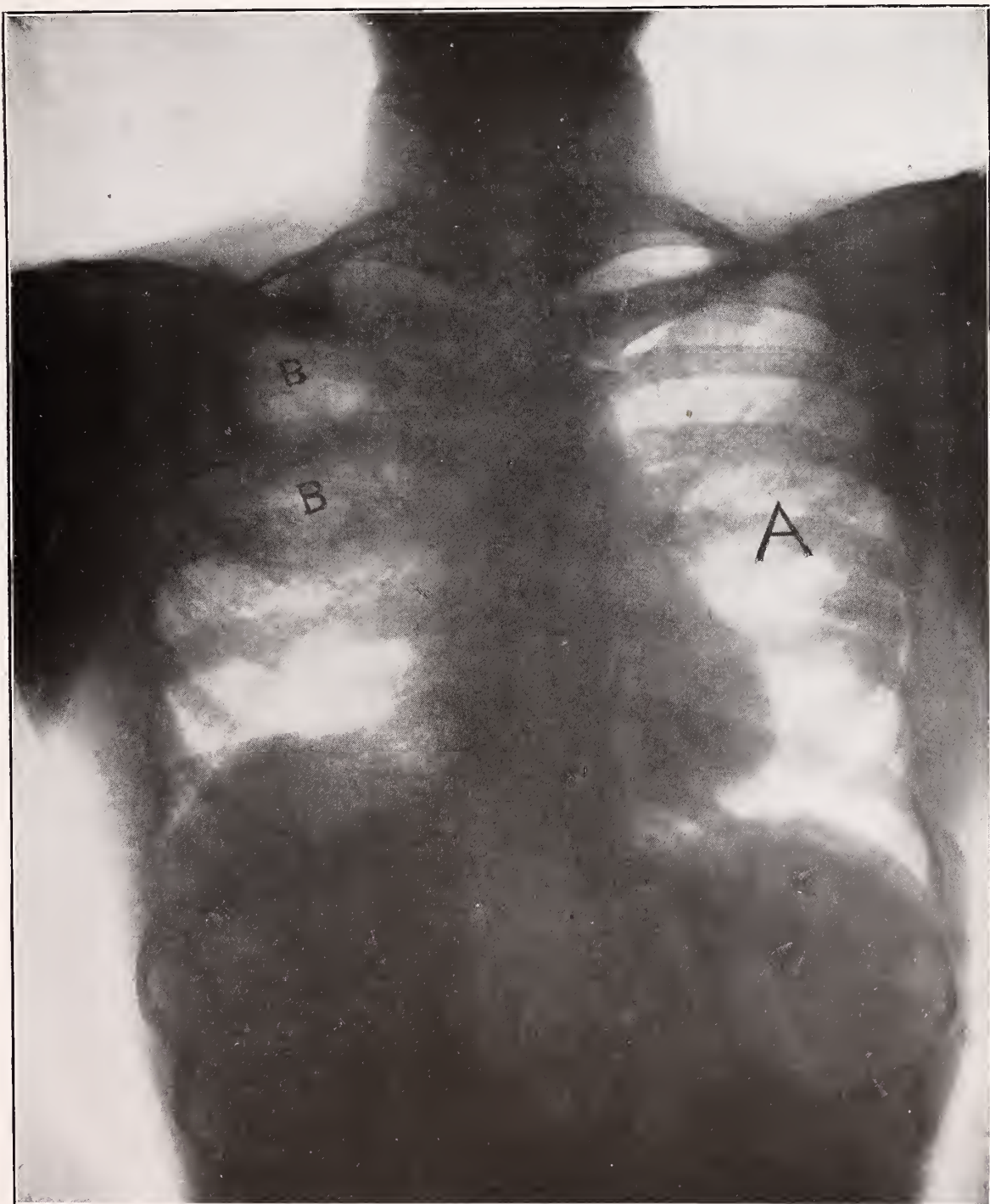


Fig. 1. A, the untreated lung. B, cavities in lung to be collapsed.

son of Edinburg in 1821 suggested the production of artificial pneumothorax for compressing tuberculous cavities and putting the lung at rest. In 1887, Adams published a report of a case of pulmonary hemorrhage in which the bleeding at once stopped on the on-

In 1882, Forlanini, of Pavia, reported a number of striking instances of improvement following the occurrence of spontaneous pneumothorax and suggested filling the pleural cavity with gas in order to compress the lung and prevent its expansion in suitable cases.

In 1894, he reported a case successfully treated by this method to the 11th International Medical Congress at Rome. In 1898, Murphy, of Chicago, unaware of Forlanini's work, conceived the idea of compressing the lung by filling the pleural cavity with nitrogen and published a report of five cases treated in this way. In 1889, his pupil Lenke published a report of fifty-three cases treated by this method, but owing to his unfortunate death the treatment was discontinued.

The reports of Forlanini attracted the attention of Brauer of Hamburg, who became thoroughly convinced of the value of the method and in 1896 Brauer published his first article upon induced pneumothorax.

Dr. Mary Lapham of Highlands, North Carolina, who has, perhaps, had a larger experience in this kind of work than any other physician in the United States, began her work in 1910. She took her first patient to Chicago where the initial injection of nitrogen into the pleural cavity was made on April 24th, by Dr. Murphy at Mercy Hospital. Since that time the literature on the subject in this country has been enriched by several contributions from Dr. Lapham as well as from Robinson and Floyd, Hamman and Sloan, King and Mills, Minor and other enthusiastic workers.

As stated by Otis:

"Not all cases of pulmonary tuberculosis, even if submitted to the open air treatment at an early stage, become arrested, but many steadily progress towards an advanced stage in spite of any and all treatment. Other cases first apply for treatment only when the disease is far advanced, so that there is always a large number of such unfortunate cases pathetically appealing to the physician for help, who knows all too well that he is powerless to render it. Occasionally, indeed, a far-advanced case does make an unexpected arrest, but generally it drags along, the disease slowly advancing, with now and then a stationary interval, until the patient finally succumbs; or else the disease continues progressively active and the patient makes a more rapid descent toward the final catastrophe. Such cases are the despair of the physician and the dupe of the charlatan into whose hand they often fall.

"To these previously considered hopeless advanced cases artificial pneumothorax offers another chance of arrest, and the increasing number of reported successful cases by men of the highest authority, and extending over a considerable period of years, has fully attested its value and established this treatment upon the firm basis of successful experience."

INDICATIONS.

Compression of the lung by means of an artificially produced pneumothorax has been usually attempted only in otherwise hopeless cases. It has been universally assumed that this should not be tried until all else failed and until recently the cases reported were practically all of a hopeless, desperate nature. Many cases recovered. Others succumbed; but in all cases failure was due, not to the *use* of

the method, but to inability to apply it properly because of complications. For example, if the lung is held by pleural adhesions it cannot be compressed. (Lapham).

King states that he has thus far limited the treatment to such cases as presented evidences of progressive disease in one lung and a comparatively slight lesion in the other and where the prognosis has been unfavorable. In the past year, however, a disposition has been shown to use the treatment in earlier cases and to employ it in any case that is not doing well with the usual dietetic and hygienic treatment.

Knopf has formulated the following indications for treatment by artificial pneumothorax: First, all such cases as have not improved under ordinary hygienic, dietetic, climatic and symptomatic treatment. Such cases are as a rule moderately or far advanced. Second, earlier cases in which there is no improvement because of mixed infection or lack of recuperating powers, or when for other often inexplicable reasons the condition remains stationary or the progress is particularly slow. Third, it is, of course, indicated in all rapidly progressing cases whether they are treated in institutions or at home, and no matter in what climate. Fourth, for all patients of the moderately or far advanced type, within or without institutions, who are discontented and feel that not enough is being done for them, and who are desirous of having pneumothorax tried. Last, but by no means least, artificial pneumothorax is indicated in uncontrollable hemorrhage or sanguineous expectoration.

Lapham has reported one series of cases in which the indications were inability to arrest the progress of the disease in fifteen cases, inability to hold a previous recovery in three cases, impatience to return to work and unwillingness to risk the uncertainty of symptomatic treatment in two active business men; while in another patient the operation was done on purely theoretical grounds.

Forlanini's indications are: I. Unilateral tuberculosis with slow or sub-acute course and with a pleura free from adhesions regardless of the degree of the lesion.

II. The same, with such adhesions as may be removed by artificial pneumothorax.

III. Bi-lateral phthisis not running an acute course and with lesions on both sides not far advanced.

Lillingston's indications are: I. Cases of extensive and acute disease of one lung coupled with slight or no disease of the other lung.

II. Certain cases failing to respond to ordinary treatment even with considerable disease of the other lung.

Forlanini long ago called attention to the

value of this treatment in haemoptysis and all observers agree to its efficiency in cases with a tendency to hemorrhage of the lungs.

Lillingston reports eighteen cases treated for periods ranging from six months to three

Lillingston believed that the treatment prolonged their lives. He has seen no fatal accident from the treatment.

"It is obvious that the chances of symptomatic relief and the probability of ultimate cure

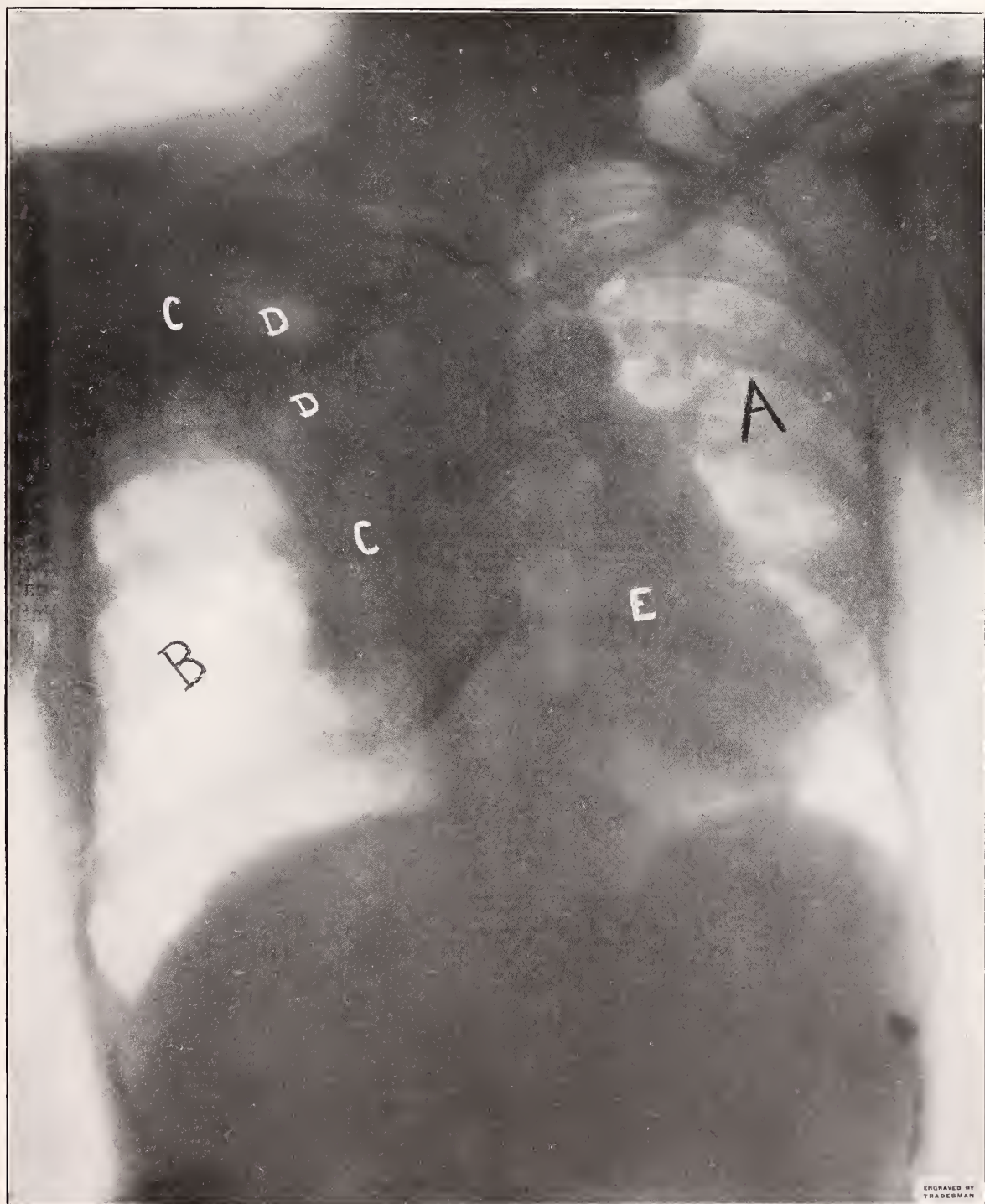


Fig. II. A, the untreated lung. B, gas in the pleural cavity. C, partially collapsed lung. D, collapsed cavities. E, heart displayed to left by pressure of gas.

and a half years. The disease was in the third stage and active and the prognosis was very bad in every case. Yet the disease was either arrested or undergoing arrest in thirteen. Five patients were either dead or dying, but

by pneumothorax therapy are dependent largely on one factor, namely, the extent to which existing adhesions may permit retraction and compression of the lung. The lung collapse will occur in proportion to the extent of the

pneumothorax; the degree of pneumothorax will correspond to available pleural space, which in turn is dependent on the extent and firmness of the adhesions.

"The most ideal conditions are those in which the adhesions, though perhaps extensive, are limited to the upper portion of the chest—in other words, those in which the disease is confined largely to the upper lobe. In such cases the introduced nitrogen not only follows the periphery, but occupies the space between the diaphragm and the lower lobe. If adhesions are not present between the latter surfaces a pneumothorax of considerable extent is established and the lung retracts to the adherent areas of the upper thorax. It is in this last group of cases that the greatest benefit may be expected." (Robinson and Floyd.)

CONTRA-INDICATIONS.

As decided contra indications, Knopf mentions the following:

First, extensive involvement of both lungs.

Second, when there is so much cavitation in the affected lung that there is danger of the needle entering a cavity.

Dry pleurisy or pleurisy with effusion.

Fourth, myocarditis, other serious cardiac complication, or serious renal complications.

Fifth, any pulmonary tuberculosis complicated by any constitutional disease which in itself is sufficient to inhibit all possible chances of recovery.

Sixth, when there is an ascites, or a distension of the abdominal cavity due to gases in the intestines, one must, of course, refrain from producing artificial pneumothorax until this condition is remedied, as otherwise a serious dyspnoeic condition and heart complications might ensue.

PATHOLOGY.

"It is to be regretted that we do not have a larger number of post-mortem records to show the exact nature of the pathological changes concurrent with this treatment. Graetz reports the autopsy findings in three cases from Brauer's clinic. He stated that tuberculous cavities showed a marked diminution in size as compared with those outlined in the clinical findings previous to the first treatment. The formation of connective tissue in the region of these cavities showed a tendency to cicatrization with contraction. Cicatrization of the isolated caseous areas was distinct, and the tendency to connective tissue formation around both the large and small tuberculous cavities was apparent, indicating that the infectious process had come to a point of quiescence, though complete healing did not yet exist. Both the old and the new cavities were characterized by exceptionally slight con-

tent of tubercle bacilli. There was a striking tendency to callus formation in the region of the vessels and bronchi, indicating the healing of perivascular and peribronchial inflammatory processes. Graetz concludes as follows: 'There is no doubt in my mind that the anatomical changes in the lung must be regarded as proof that the tuberculous disease has come to a standstill and is in the process of healing.' He associated this condition with the lung compression resulting from the artificial pneumothorax and believes that there is a certain relation between the extent of the connective tissue formation and the duration of the compression. This extensive cicatrization of the tuberculous process which was marked in the lung previously subjected to compression was not present in like degree on the untreated side.

"There are reasons for believing that changes in the lymph circulation are responsible for the clinical and pathological changes which occur after the establishment of a pneumothorax. This is demonstrated clinically by evidences of diminished toxic absorption, namely, a fall in temperature, a reduced number of night sweats, and a rise in the opsonic index. It would seem more consistent to ascribe this to a retarded lymph circulation than to an altered blood distribution. Pathologically it may be argued that atelectasis following pneumothorax, restricting the lymph circulation, limits the spread of bacteria and favors the growth of connective tissue. It would seem that lung compression might favor the escape of foreign infectious material into the lymph circulation; but the experiments of Graetz are evidence to the contrary, inasmuch as he has been unable to find artificially introduced material in the neighboring lymph nodes." (Robinson & Floyd.)

"When nitrogen is injected into the pleural cavity, and more and more pressure is obtained, the typical results are manifested in proportion to the degree of compression of the lung. At first the temperature may rise, the pulse quicken, and the amount of sputum increase on account of the pressure, but when these first effects are over, the lessened production and absorption of toxins is shown by a fall in temperature and pulse rate, and diminished expectoration. With complete compression of the lung, the breath sounds disappear or are heard only as a metallic whistling. There is drum-like resonance over the entire side except over the shrunken lung, which the X-Ray shows has little or no ability to expand. All this is but preliminary. The enemy has merely been driven out. The real reconstructive processes must complete the work so that recovery will be of the most durable and permanent nature, and no future re-

lapses can occur. While the lung is compressed it is safe, for no infection can occur. It is a more difficult task to put the lung in such condition that it will not always have to be compressed, but may with

blasts to shoot out from the walls into the injured tissues and for cicatrizing processes to convert the walls of ulcers and cavities into firm, durable scar tissue. Fortunately this organizing invasion of fibroblasts does not con-

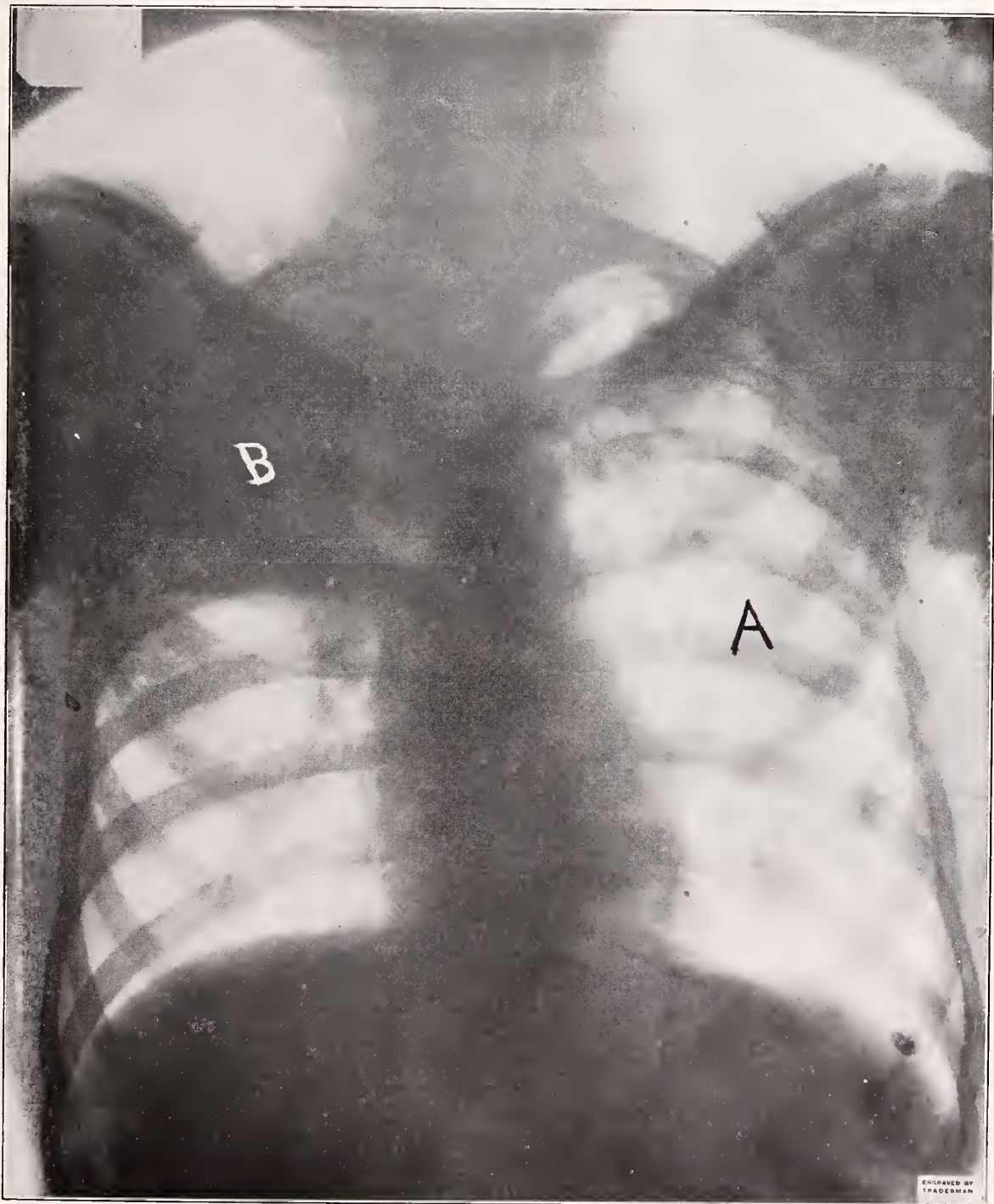


Fig. III. A, the untreated lung. B, consolidated upper lobe.

entire safety to the patient expand and resume its function. This is accomplished by maintaining sufficient pressure within the pleural cavity to hold the lung closely together so that the reparative processes may never be torn. Thus an opportunity is given for fibro-

cern itself with sound tissues. Elaborate experiments have proven conclusively that the sound portions of the lung are in no way affected by this process. Moreover, uninjured alveoli show no tendency to adhere no matter how long the pressure has been kept up. After

a year or more when the pressure is removed the healthy alveoli readily separate and resume their function.

"In order to insure complete anatomical recovery, it is generally agreed that the lung must be kept firmly compressed for about a year in uncomplicated cases before it is safe to allow it to expand. At first the nitrogen is injected frequently, then less often as the pleural surfaces lose their power of absorption. In the beginning the injections are made every other day, then twice a week, and later on once or twice a month will suffice."¹

Like any other operative procedure, artificial pneumothorax has its dangers. Dunham and Rockhill mention the following:

First, heart misplacement and therefore derangement of blood supply, a strain of the aorta or a kink in the vessels resulting from too great pressure.

Second, break in the mediastinum, from too great pressure.

Third, gas embolism, which might result from a puncture of the lung and the needle entering an artery. The possibility of this can never be entirely done away with in using Forlanini's thoracentesis, but careful watching of the manometer and skillful manual technic will reduce the risk beyond the necessity of employing Brauer's thoracotomy in our opinion.

The fourth danger is that of infection of the pleural cavity and resulting pleural effusion and suggests a break in the asepsis. Effusion occurs in about one half of the generally reported cases.

The fifth, emphysema, is really more of an inconvenience than a danger.

The sixth danger, abnormal conditions, has been avoided by never giving an injection during the menstrual period or immediately following a debauch.

A considerable number of sudden deaths have been reported from this operation. The most frequent cause for this is gas embolism and the first patient I saw treated by this method in Vienna in the spring of 1911 nearly died from gas embolism on the table.

Other serious accidents are due to pleural reflexes such as slight collapse or dyspnoea, complete aphonia and spasm of the glottis. These accidents from gas embolism occur almost without warning. Cases of sudden death have occurred without any nitrogen having been turned on and come with instantaneous cessation of respiration and circulation. Quinke has reported several cases of sudden death which he has ascribed to gas embolism. Lennhartz has reported six cases in which respiration ceased instantaneously. The patient be-

came pale and the pulse stopped. It was as if they were suddenly struck dead, as quick as lightning. In case death was delayed the symptoms were those of embolism such as convulsions, rolling of the eyeballs upward, contraction or dilatation of the pupils, loss of pupillary reflex, etc. With the improved apparatus in use at the present time and the careful regulation of the operation by the use of the manometer, no such unfortunate accidents should occur and in their conclusions Hamman and Sloan state that induced pneumothorax is a harmless procedure and the operation carefully performed is without danger. They also state that: I. A pneumothorax has, in most instances, an immediate and striking influence upon the cough and expectoration. Tubercle bacilli may disappear from the sputum.

II. Constitutional symptoms abate more slowly. In most instances there is at first a loss in weight followed by a gradual rise.

III. The total collapse of one lung causes surprisingly little inconvenience. Usually there is but slight dyspnoea on exertion. Many of the patients with an induced pneumothorax assist actively about the sanatorium.

IV. The procedure is of great value in the treatment of pulmonary hemorrhage.

V. While induced pneumothorax will never become a routine method for the treatment of pulmonary tuberculosis, in selected cases it offers a prospect of temporary relief when the usual methods of treatment have been unsuccessfully tried. Quiescent lesions in one lung and acute recrudescence in the other are the most favorable for the treatment. Its use need by no means be limited strictly to unilateral lesions, but when there is advanced disease of both lungs little benefit can be expected. It would seem advisable not to withhold treatment from a patient until he is hopelessly advanced, but to apply it judiciously to suitable moderately advanced patients in whom the disease tends to progress in spite of appropriate treatment.

Forlanini, in 1912, had performed ten thousand operations on 134 patients of whom two died from gas embolism, and twelve exhibited serious symptoms which were very alarming in five cases but never fatal.

Saugman, in 1913, with an experience of about 5,000 operations on 186 patients had seen two fatal cases at first injection.

Lillingston with an experience of thirty-two patients and several hundred punctures of the chest has met with no more alarming symptoms than slight shock of a minute duration in one case. In an article in the *London Lancet* of September 13, 1913, he mentions the following "don'ts:"

1. Don't inject gas without satisfactory

1. Lapham.

manometric oscillations or at a pressure exceeding the atmospheric pressure when beginning a first injection. 2. Don't spare anaesthetics. 3. Don't create a high intrapleural

during menstruation when reflex excitability may be raised. 5. Don't puncture on the first occasion in many different places in a search for a free pleural space; patients have collapsed

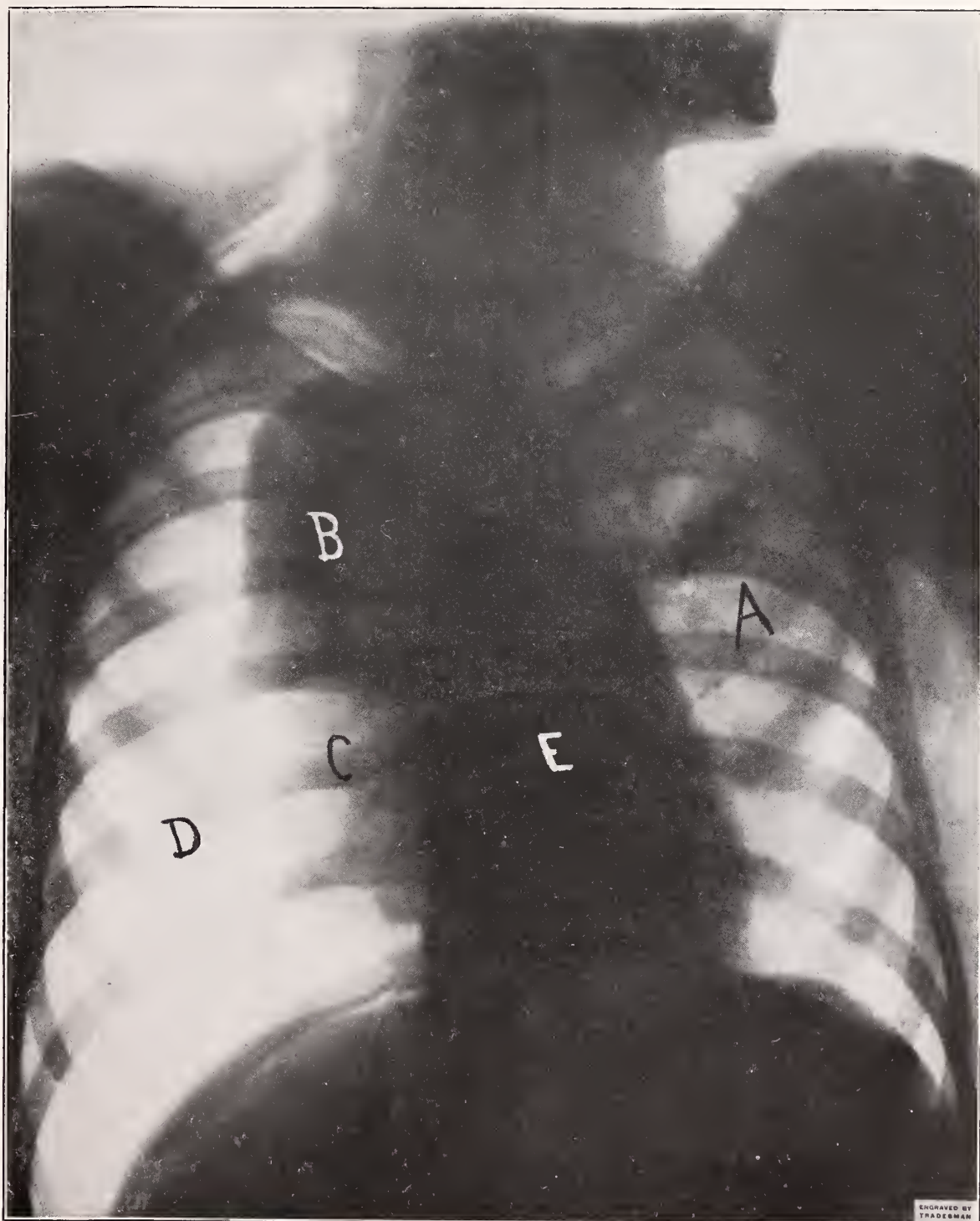


Fig. IV. A, the untreated lung, B, consolidated upper lobe collapsed, C, collapsed lower lobe, D, gas in pleural cavity, E, heart and mediastinum displaced to the left.

pressure. A pressure of forty cm. of water may cause no discomfort during an injection, but it may be more than doubled by a fit of coughing and a leak may spring in the pneumothorax. 4. Don't induce a pneumothorax

after the sixth or seventh puncture who have tolerated the first punctures well. It is better to continue the search for a free pleurae in a day or two. 6. Don't inject gas rapidly at a low temperature. Brauer has once seen

symptoms of pleural-reflex after the use of cold gas. 7. Don't use large needles or needles with rough surfaces; and don't let the rubber drag on the needle during an injection. 8. Don't inject until the patient's posture is easy and comfortable. 9. Don't hesitate to withdraw the needle at the earliest sign of collapse. 10. Don't operate without brandy and a hypodermic syringe of ether handy.

H. Braham of Hanover, Germany, in a communication presented to the Congress in Rome, reported eighty cases in which there was no hope from any other method of treatment, 49 of which or 61.2% being apparently cured by means of artificial pneumothorax.

Rothschild believes that it is well worth while to try an artificial pneumothorax in all one sided cases of tuberculosis in which there is no improvement under the ordinary treatment in which the inflation is possible; that is, where the adhesions are not so extensive that they prevent inflation and compression. If the patient shows signs of improvement under the treatment with artificial pneumothorax, keep it up; if not do not reinflate. The same principle should be followed in regard to the other side—in case this should be slightly affected. If it should improve through the increased aeration, which the compression of the other side necessitates, keep up the artificial pneumothorax on the bad side; if it should get worse, interrupt the treatment.

Sorgo has applied therapeutic pneumothorax in forty-five cases of tuberculosis and is convinced that *it is the most effectual operative procedure known to date* and that its application is justified in all cases of severe unilateral phthisis. The great trouble he found was, as have all other operators, that patients at first constantly lost weight under the artificial pneumothorax, and this in turn had an unfavorable action on the other lung. The main point consequently of this compression treatment, he states, is to ascertain that the other lung is sound or at least that the process in it is mild, restricted to the apex and displaying a benign tendency. The outcome seems to depend entirely upon this lung.

Renon states that in spite of the objections that have been raised to this method of treatment such as the danger of whipping up a process in the other lung or bringing on heart trouble, the tediousness of the treatment and its expense, we must recognize the record of great benefits realized. This is particularly striking, he declares in the cases of acute tuberculosis which have proven rebellious to all other measures. In cases of galloping pulmonary tuberculosis in which the process continued a progressive course in spite of all treatment, and a fatal outcome in four or five weeks seemed certain, he has witnessed the immediate

arrest of the progressive course under the artificial pneumothorax. Even if there are a few pleural adhesions preventing the complete collapse of the lung, the partial collapse answers the purpose and it may become total as the adhesions stretch and break. It is possible, he adds, that these acute forms with rapid softening of lung tissue and tendency to severe haemoptysis may prove to be the special indication for artificial pneumothorax while we are waiting for the specific remedy that will cure tuberculosis.

Jacquerod states that in a series of twenty-three cases which he attempted to treat by artificial pneumothorax, pleural adhesions made the operation impossible in eight. These have since died, while a number of those successfully treated are practically cured and all were improved. A tendency to recurring severe haemoptysis was immediately arrested by the pneumothorax in two cases although the compression was not complete in one.

Van den Bergh states that the great danger in the procedure is that some minute focus on the other side may be whipped up by it, and the tuberculous lesion may spread rapidly. This occurred in one of the cases reported. To date it seems impossible to tell beforehand which patients will derive great benefits from the compression of the tuberculous lung by this means. For the present, therefore, it seems necessary to restrict the application of the method to cases of serious pulmonary disease limited almost entirely to one lung and progressing under conservative measures.

Spengler has recently reported his results in the treatment of ninety-three cases with therapeutic pneumothorax. Twenty-six per cent were clinically cured; 41% had not quite completed the course, but the improvement to date was very encouraging. In only 21% was the desired result not realized and in most of these cases conditions prevented a complete pneumothorax. Thus favorable results were realized in 69 of 93 cases or in over 78%.

Gray of Chicago is of the opinion that artificial pneumothorax offers much in selected cases and that no progressive case should be given up without first considering this operation. He thinks it is better to sacrifice a partially destroyed lung than to await its almost certain destruction because it is possible to save a fair percentage of otherwise hopeless cases.

Robinson and Floyd have reported twenty-eight cases of phthisis which have been subjected by them to artificial pneumothorax and state that: I. Pleural eclampsia or a reflex inhibition of the heart through vagus irritation from the pleura is a danger to be considered in this treatment as in other therapy

requiring thoracentesis. We believe that it may always be prevented by anaesthetizing the pleura with novocaine before puncturing it.

II. Air embolism may result from the direct introduction of gas into a pulmonary vein.

IV. Pulmonary tuberculosis when essentially unilateral, and resistant to hygienic treatment, is in a certain number of cases arrested by the continuous employment of artificial pneumothorax therapy. Our treatment has

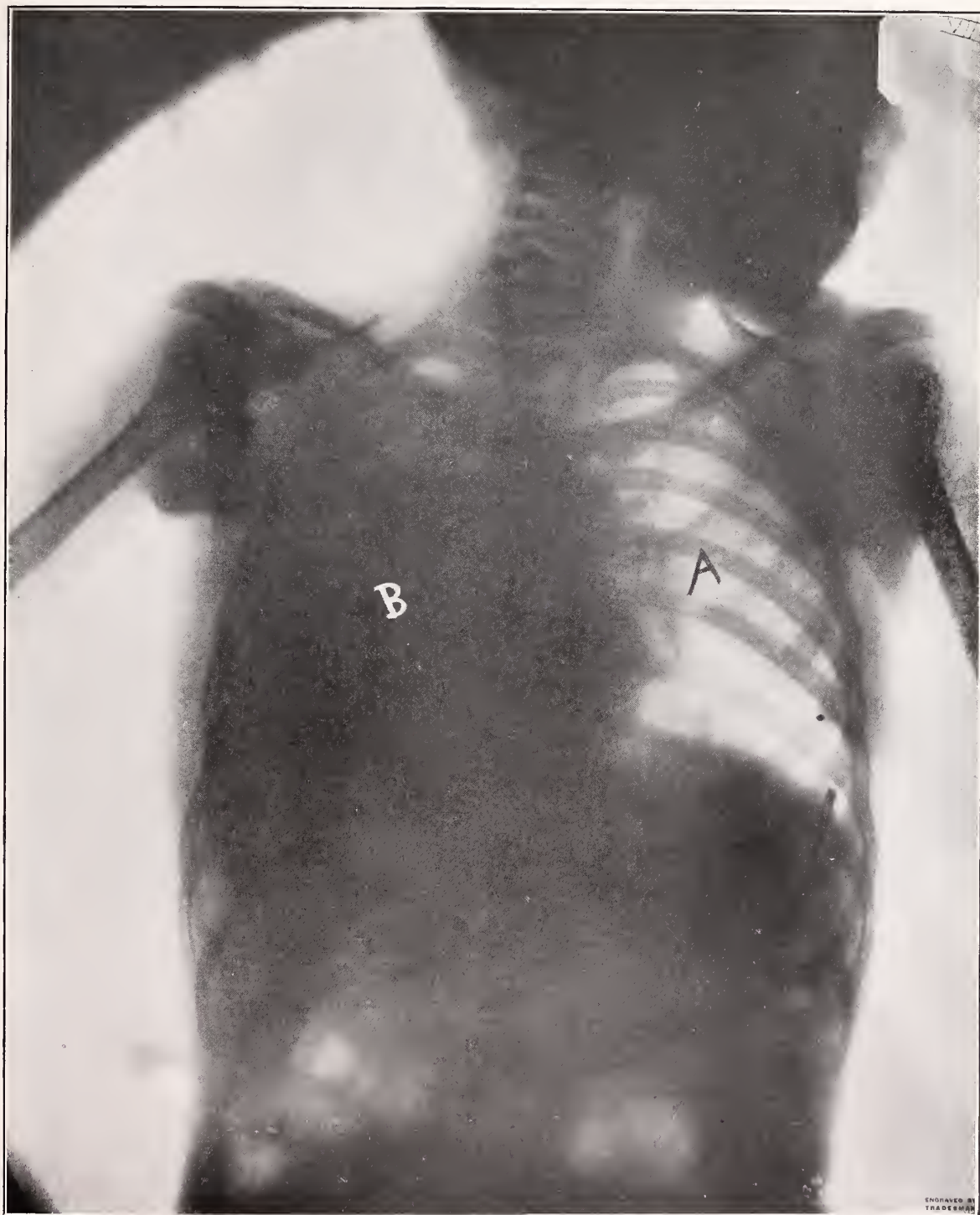


Fig. V. A, the normal lung. B, thickened pleura with bronchiectatic cavities in the lung.

This should never occur if the technic is faithfully observed.

III. We have experienced no accidents and believe that they are always avoidable, and so conclude that pneumothorax therapy is a safe procedure.

been of insufficient duration to permit us to claim a permanent cure in any one case. We believe, however, that it is possible as proved by the recent reports of Braner and Spengler.

V. We conclude, therefore, that artificial pneumothorax is entitled to definite recogni-

tion in the treatment of pulmonary tuberculosis.

Before undertaking the introduction of an artificial pneumothorax in a given case, a careful physical examination of the chest should be made and the X-Ray should be used in every case.

Dunham and Rockhill of Cincinnati have emphasized the importance of roentgenograms, to watch the progress of the disease, to detect the extent of the lung collapse, to note the pressure on the heart and mediastinum, to exclude pleural effusion and to safeguard the unfilled side. Unfortunately, the X-rays are not of direct value in helping to decide whether or not it will be possible to find a free pleural cavity. They have learned from stereoscopic roentgenogram that it is almost impossible to make out accurately the extent of the pneumothorax by percussion because in some cases the lung is collapsed anteroposteriorly and in others the lung is adherent to the chest wall as a streamer, a collapse taking place around the various attachments, whereas complete collapse from chest wall to mediastinum is rather the exception. It is of great interest in many of these cases to watch the cavities gradually become obliterated by successive injections of gas. The position of the heart cannot always be made out by percussion and auscultation either, as it is frequently pushed from the left posteriorly, rather than altogether from the left to the right. In short, these conditions can only be determined by the Roentgen rays; but perhaps the greatest value of roentgenography lies in being able to watch the progress of disease in the uncollapsed lung.

Dunham and Rockhill are of the opinion that eventually artificial pneumothorax will be utilized for much earlier lesions and that the collapse will be obtained by more radical surgery when the pleural cavity is obliterated by adhesions.

AUTHOR'S EXPERIENCE

My personal experience with this operation in the treatment of pulmonary tuberculosis is perhaps too limited to render my opinion of much value to anyone but myself, but no one I am sure can watch the progress of cases treated in this way without becoming an enthusiastic advocate of its use in certain cases, and my observation has convinced me that the operation can be done to great advantage in much earlier cases than its originators suggested.

No greater advance has been made in recent years in the treatment of tuberculosis and when employed in addition to the recognized methods of treatment, the results at times seem truly wonderful. One has but to try the method to become convinced of its usefulness. As

Knopf states, it cannot of course be considered a cure-all, but it will often help when all other methods fail.

By no method of examination is it possible to tell positively whether or not any given case is suitable for treatment. "To determine in the presence of tuberculous disease of the lungs and pleura a point at which the pleural layers are not adherent is a task attended with great uncertainty. The percussion note is the most reliable guide. That area presenting the note nearest approaching the normal resonance is most likely to be free from adhesions because of the apparent absence of either a thickened pleura or underlying tuberculous consolidation. A stethoscope may also aid in determining whether the lung is mobile or fixed within a certain area. Auscultatory signs indicating the absence or limited existence of underlying tuberculous disease may aid in designating an area of non-adherent pleura." (Robinson and Floyd).

Only repeated attempts will enable one to tell whether the pleural cavity may be entered and a pneumothorax successfully produced. One of my patients, after an illness of three years, spent two months in a Chicago Sanatorium where she went for the purpose of artificial pneumothorax treatment. No attempts were made to enter the pleural cavity and at the end of that time she was told that owing to repeated attacks of pleurisy, the number and density of adhesions were such as to render her case unsuitable for this method of treatment. I was able to enter the pleural cavity and introduce 775 cubic centimeters of gas on the first attempt. After eight treatments, extending over a period of six weeks, a pneumothorax containing 1,500 cubic centimeters of gas was produced. The lower lobe of the lung as seen in Figure 2 was completely collapsed; the lower portion of the upper lobe was contracted upwards but not inwards, owing to adhesions; the daily amount of sputum was reduced from five to two ounces; the maximum daily temperature brought down from 101 or 102 to normal; the pulse from 110 and 120 to eighty or ninety; and the patient put on the road to recovery.

Another case (Figure 3) also showed the impossibility of telling from physical signs and X-Ray pictures whether or not the pleural surfaces were adherent. It also showed the great usefulness of artificial pneumothorax in acute pneumonic phthisis or galloping consumption—a class of patient which almost invariably do badly. B. S., aged twenty years had been ill but six weeks when I first saw him, during which time he had lost twenty pounds in weight. His maximum daily temperature was one hundred one to three, pulse constantly rapid, expectoration five to six ounces per day.

The physical signs showed consolidation of the upper lobe of the right lung with areas of cavitation. Coarse and medium rales were heard throughout the left chest. The X-Ray picture (Figure 3) confirmed these findings

introduced and to my astonishment the X-Ray picture (Figure 4) showed almost complete collapse of the entire lung with no evidences whatever of adhesions. It also showed that the consolidation was confined to the up-

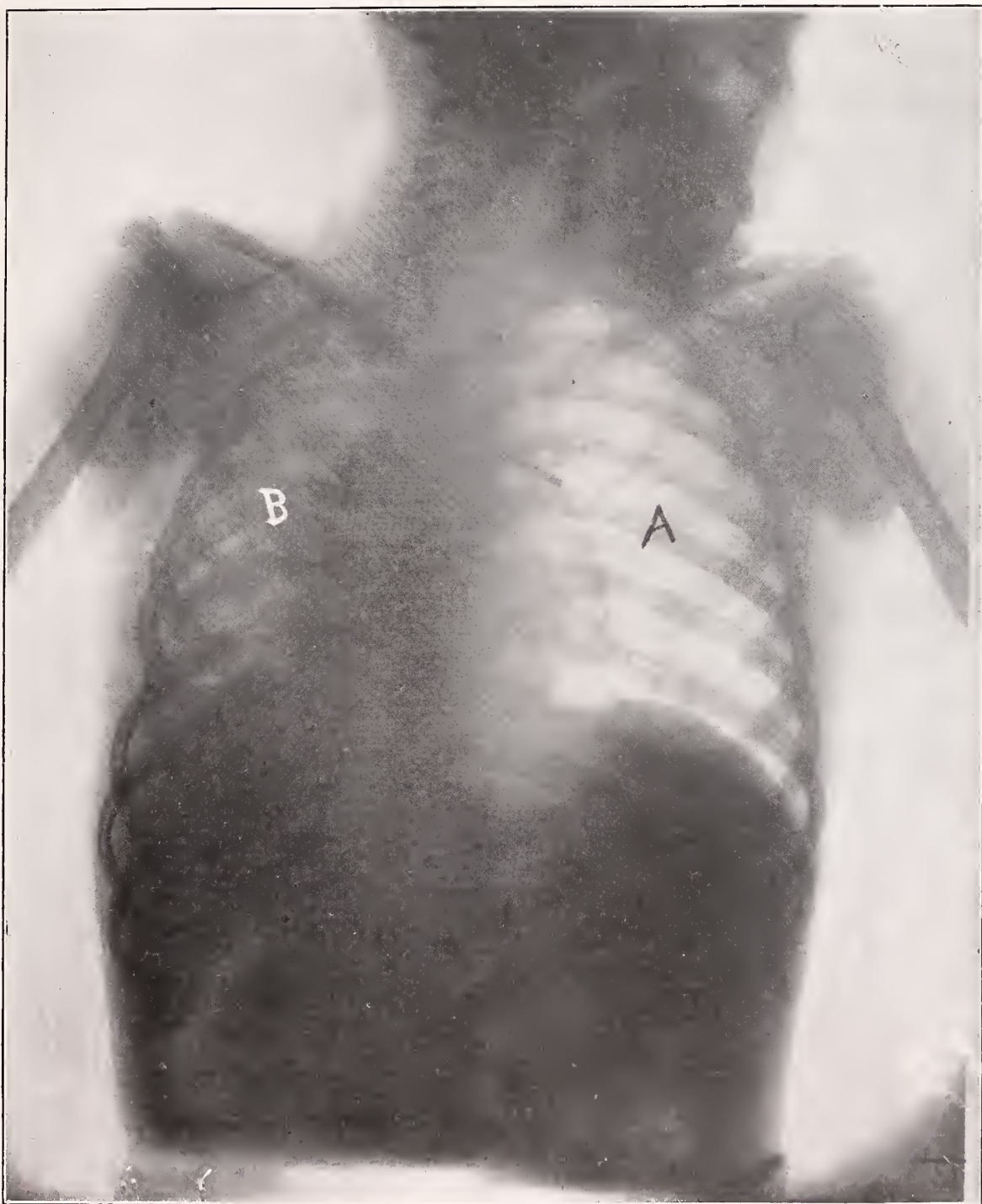


Fig. VI. A, the untreated lung. B, the diseased lung after the introduction of 1100 cubic centimeters of gas into the pleural cavity which is traversed by numerous bands of adhesions.

and warranted the belief that complete collapse of the lung would probably be prevented by adhesions. To my great surprise 1,200 cubic centimeters of gas were readily introduced at the first attempt. Five days later 1,400 cc, were

per lobe. The different degrees of collapse in the upper and lower lobes are distinctly shown in the picture.

Physical examination showed the respiratory movements to be more marked on the left

than on the right side: but little dyspnoea; precussion note hyper-resonant over the right front and back; tympanitic along base. Tactile fremitus absent everywhere: Breath sounds not heard: Whispering voice accompanied by metallic overtones over the whole side: No rales. Left Side—Tactile fremitus felt over both front and back; Breath sounds harsh over the whole side: Few rales. At the end of one month's treatment, during which time he received five fillings, his temperature was constantly normal, the pulse from 75 to 90, the sputum reduced from six or seven to two ounces per day, the appetite was good and the patient had begun to gain in weight.

That one must not become discouraged at being unable to enter the pleural cavity at first is shown by my experience in the case of a little girl seven years of age with disease in the left side of the chest. Eight months previously she was taken ill with broncho-pneumonia which ran a protracted course and terminated in what was supposed to be empyema. Her physicians administered an anaesthetic and punctured the chest wall in nine places—three in front, three at the side and three in the back—in an attempt to find pus. None, however, was found, and after an irregular fever with considerable expectoration, accompanied by loss in weight, she was brought to Grand Rapids. Physical examinations showed considerable dullness in the lower part of the chest behind and diminished breath and voice sounds, with impaired resonance and many musical resonant rales over the front of the chest. The dullness in the back was not of quite the character and extent found over an effusion. It seemed, however, to be more dense than would be produced by a thickened pleura and from the history of the case I was inclined to believe the child had an empyema. Through a small aspirating needle I drew out a syringe full of pus. The following day under anaesthesia at the hospital I repeated the exploration, withdrawing another syringe full of pus, and then resected an inch of rib. To my surprise on going through the pleura but a small amount of pus was obtained. I inserted a drainage tube and had an X-Ray picture (Figure 5) taken the next day. It showed a greatly thickened pleura in the lower half of the lungs rendering it impossible to determine definitely the condition of the underlying lung, and bronchiectatic cavities in the upper half. The tube was taken out at the end of a week and the child returned to its home. During the next two months her condition remained about stationary. The temperature would be normal for a few days and then for a week or ten days would rise each day to one hundred one to three degrees. The child was then brought back to the Hospital and a steroentgenogram

taken which showed about the same condition as when the first picture was taken.

Pielsteicher and Vogt report ten cases of artificial pneumothorax ranging in age from ten months to fourteen years. In eight of the cases the conditions favored the successful collapse of the lung by this means and confirmed again the great benefit derived from shutting off an entire lung even in the youngest children. The results were disappointing in the cases of chronic bronchiectasia. Radiography showed that adhesions prevented the collapse of the lung at certain points. In cases of tuberculosis the outcome was wonderful, the disease taking an unhopd for turn for the better. In two such cases the condition had been regarded as absolutely hopeless before. One was in the youngest child treated and in this case there was a slight effusion into the gas filled cavity. The first operations were made under general anaesthesia.

The experience of several operators, especially abroad, has been that in applying the procedure to children with chronic bronchiectasia it is sometimes hard to tell when the needle is in the pleural cavity. I found this to be true in this case. On my first attempt I punctured the thoracic wall in four places, but was unable to satisfy myself that I had entered the pleural cavity. Several times the manometer gave slight excursions, but knowing that this might be the case if the end of the needle was in the lung substance, or a pulmonary cavity, or in a mass of pleural adhesions, I preferred not to take any chances and so desisted from my attempts to introduce gas. On the second attempt three days later 1,000 cubic centimeters of gas were introduced with a single puncture. Three days after 1,100 cc. of gas were introduced. This was a large amount of gas to inject at the second treatment, especially in so small a patient, but the gas flowed freely under slight pressure and without any apparent unpleasant effect upon the patient. From the amount of gas introduced and the marked excursions of the manometer, I knew I was in the pleural cavity. Such pronounced movements of the manometer can be produced in no other way. The X-Ray picture (Figure 6) does not show a well-defined pneumothorax as in the other cases illustrated. The gas seems to have diffused itself throughout a large number of meshy pleural adhesions or perhaps masses of disorganized lung tissue, some of which seems to be in the shape of strings running from the surface of the lung to the chest wall. Perhaps also the lung is collapsed in an anteroposterior direction rather than laterally. From the amount of gas injected, and the apparent collapse of at least a portion of the lung as is indicated by the physical examination, as well as from the re-

duction in the amount of sputum from nine to three ounces per day, I am hopeful of eventually relieving the little patient. Physical examination over the right lung shows areas of hyperresonance at the side and back, with di-

The benefits obtained in such cases is shown by my experience with Mrs. C. whom I have had under observation since March 1913. She has had chronic pulmonary tuberculosis for seven years and during that time has had the usual

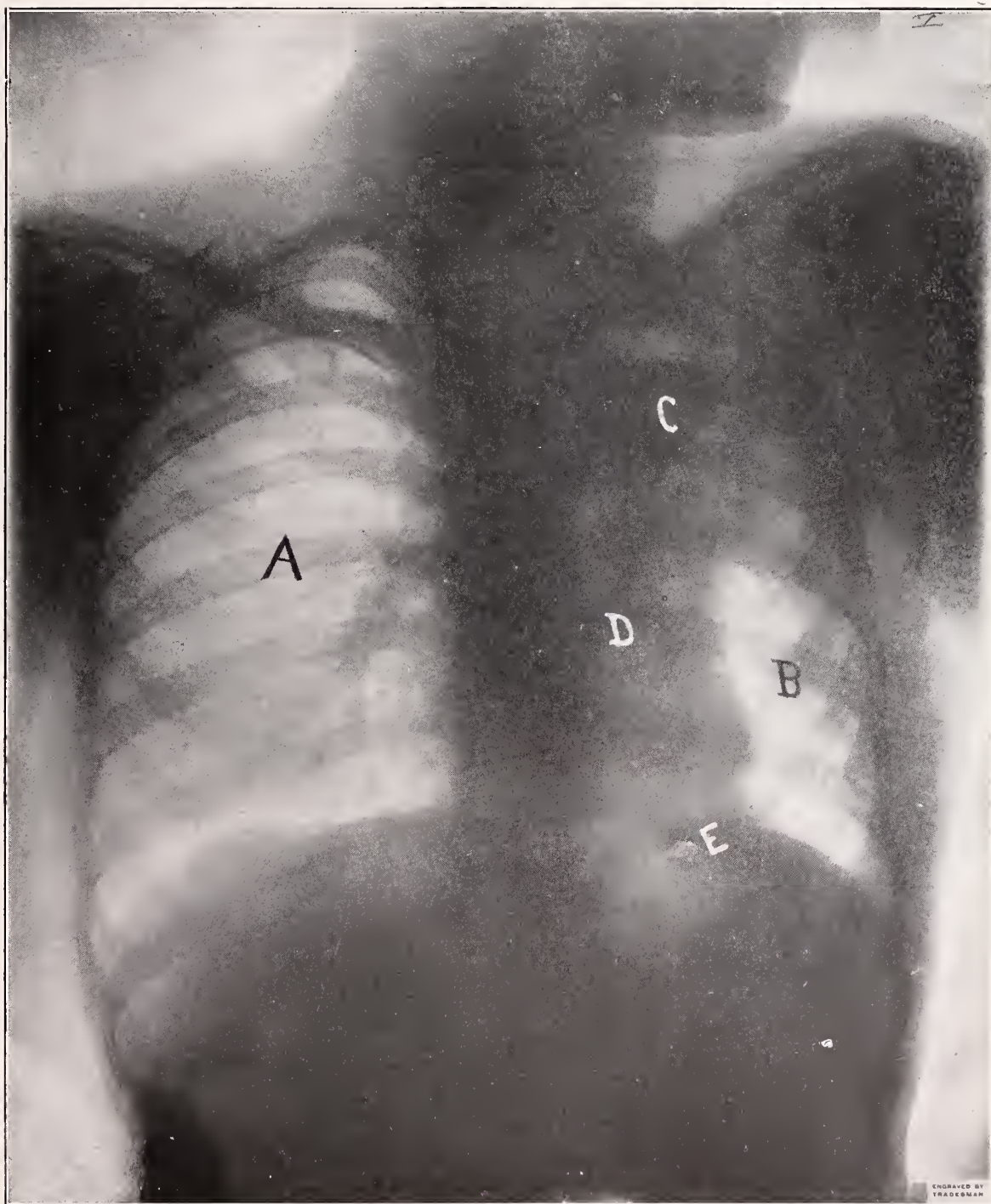


Fig. VII. A, untreated lung. B, the diseased lung. C, consolidated upper lobe with several cavities. D, the heart drawn to the left by the contracted lung. E, adhesion between pericardium and the diaphragm.

minished tactile fremitus, absence of breath sounds, and whispering voice of a metallic quality.

All observers agree that artificial pneumothorax is of great value in cases with hemorrhage of chronic sanguineous expectoration.

exacerbations and remissions peculiar to such patients. Last July she had two severe hemorrhages and has raised more or less blood since that time. During the summer she expectorated from one to two ounces per day and lost several pounds in weight. At one time she

was in bed for ten days with a temperature of 101 to 103.

Physical examination showed an advanced lesion involving the entire left lung with a less advanced one on the right. The upper left

many resonant rales. Kroenig's isthmus was contracted from seven to two and a half or three centimeters.

Owing to the advanced fibrosis and contraction on the left side, the percussion note of the

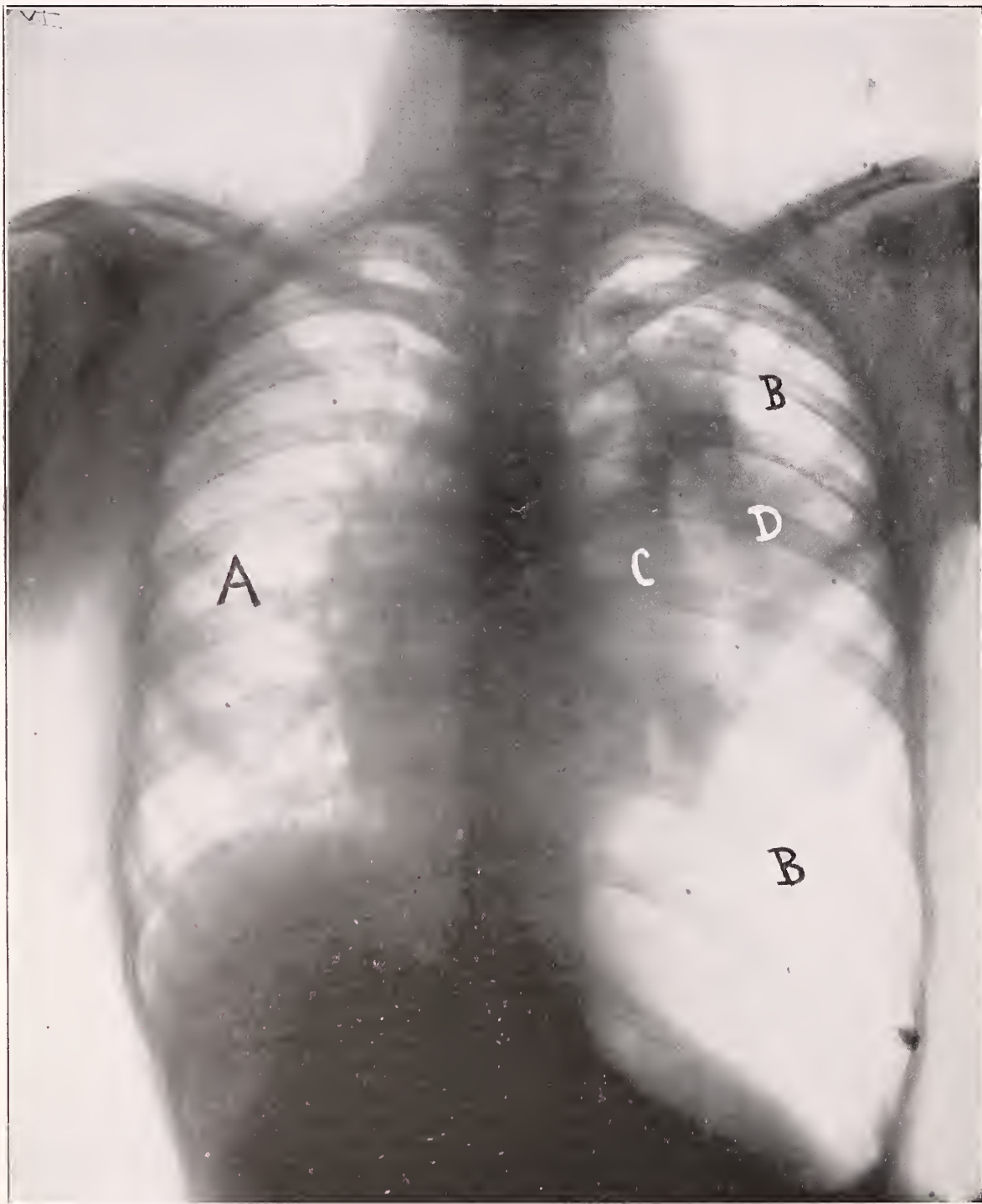


Fig. VIII. A, untreated lung. B, gas in the pleural cavity. C, the partially collapsed lung. D, adhesions holding the partially collapsed lung to the chest wall.

lobe was consolidated with a cavity below the outer half of the clavicle near the anterior thoracic wall and another at the apex near the posterior wall. Scattering infiltrated areas were found throughout the lower lobe with

right lung extended an inch or more to the left of the median line. Figure 7 shows the X-Ray examination before the first operation. It is interesting to note the considerable displacement of the heart to the left, the anterior

mediastinum having entirely disappeared under the right edge of the sternum. I succeeded without difficulty in introducing 550 cc. of gas at the first puncture. The patient stood the operations well, and at the end of five weeks the X-Ray picture showed (Figure 8) an almost complete collapse of the lung. The heart had been pushed back to its normal position and the cavity partially closed. The patient's general condition had improved wonderfully, there was but little cough and no expectoration, the temperature and pulse were normal and the patient had begun to gain in weight.

Knopf makes the statement that it is now a well established fact that artificial pneumothorax is a valuable adjuvant in the treatment of pulmonary tuberculosis; yet, in view of the possibility of an accident (not necessarily in the primary filling, for experience has shown that they are more likely to occur in subsequent fillings), every practitioner should protect himself by procuring the written consent of the patient or guardian before resorting to this method of treatment.

In conclusion, I wish to make acknowledgment of the helpfulness of Dr. Henry Hulst in the prosecution of this work. As the procedure is not entirely free from dangerous accidents and unpleasant sequelae, I do not think any one is warranted in undertaking the treatment of pulmonary tuberculosis by means of artificial pneumothorax without the co-operation of an experienced radiographer.

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PULMONARY TUBERCULOSIS AND PREGNANCY.*

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My interest in the subject of pregnancy as a complication of pulmonary tuberculosis was first aroused by several cases which we had soon after the opening of the Detroit Tuberculosis Sanatorium. Since then instances have rather frequently occurred and the question as to what should or should not be done is an ever recurring one. Upon looking up the subject I have found that there is by no means an unanimity of opinion regarding the treatment; indeed, at the meeting of the International Tuberculosis Congress, held last year at Rome, the most variant views were expressed, some holding the older idea that it is best in most cases to allow the pregnancy to continue; others, on the contrary, stating most emphatically that radical measures should be taken to end the gestation.

The principal question to be answered, namely, "Is pulmonary tuberculosis an indication for therapeutic abortion?", is one which must frequently present itself to every practitioner, for according to Bacon, there are in the United States, yearly, from 22,000 to 44,000 tuberculous pregnant women. Tuberculous women are rarely sterile, so that it is fair to assume, as does Bacon, that the adult ratio of tuberculosis morbidity applies to all obstetrical patients. In general from one to one and one-half per cent. of female adults are afflicted with tuberculosis sufficiently advanced to be readily recognized. Applying this ratio, we arrive at the conclusion that, in this state there are, annually, 700 to 900 pregnant women who have active tuberculosis¹. Moreover, this estimate is most conservative, for it is well known that tuberculosis is more frequent in married than in single women. Furthermore, consumption is a frequent cause of death in the puerperium, as has been shown by Van Tussenbroek, who found, from the Holland statistics, that one of every three women dying after child birth, succumbed to the disease. From these facts it will be seen that the topic is an important one.

In discussing the question as to whether or not it is right to induce abortion because of tuberculosis, it should all the time be borne in mind that a very sharp distinction must be

* Read before the Section of Gynecology and Obstetrics, M. S. M. S., 48th Annual Meeting, Flint, Sept. 4-5, 1913.
 1. The Secretary of State writes me: "The statistics for 1912 are not yet completed. For your article, however, it would be safe to say that 65,000 births occurred in Michigan during 1912."

made between those patients who have a quiescent, or a healed lung lesion and those patients in whom the process is active, manifesting itself by a cough, slight rises in temperature, nutritional disturbances, etc. The issue has been befogged somewhat because this distinction has not always been clearly made, and this fact accounts, I think, for some of the differences of opinion which have been expressed. Moreover, the history of a lung lesion in the past, or the assumption of its presence on insufficient evidence, has far too frequently been used as an excuse by those who wish to justify themselves in terminating a pregnancy. Bear in mind, then, that in this discussion we are dealing only with those women who have unmistakable, active tuberculosis.

Furthermore, the subject is one in which it is particularly dangerous to draw general conclusions and thereby set down irrevocable rules for our guidance in every case. A careful study must be made of each patient and in arriving at a decision as to what course to pursue all the facts must be taken into consideration. In this study, it is important that at least two physicians should participate, if possible an internist and an obstetrician.

In the analysis of such a case of open tuberculosis, attention should be given to the following considerations: (1) What will be the probable effect of the tuberculosis upon the pregnancy, if the latter be allowed to continue? What are the chances of a spontaneous abortion? Will the child be healthy and vigorous? (2) If the pregnancy continue will it seriously aggravate the lung condition?

THE EFFECT OF PULMONARY TUBERCULOSIS UPON PREGNANCY.

In general it may be said that a severe lung lesion may exist without greatly influencing the pelvic organs. This is shown by the effect upon menstruation. Macht studied the histories of 1,600 tuberculosis women between the ages of twelve and forty-five years to determine the effect of the disease on the menses. He found that there was no change from the normal in 51.6 per cent. In the late stages there may be amenorrhea, which occurred in 27.3 per cent. Preceding the cessation, there was a more profuse flow in 4.6 per cent.

When pregnancy has occurred, spontaneous abortion may take place, but this happens rarely and only either in the case of those patients who are prone to miscarry on account of extensive lacerations and in whom the added strain from coughing is adequate to bring about this result, or secondly in those cases where there is sufficient toxemia, as shown by continued high fever to cause the death of the fetus. In a vast majority of the cases, in spite of a grave condition in the mother, the child

develops normally and reaches term comparatively unaffected. True, there are a few recorded instances of direct infection, but these are so few that they may be disregarded.

Such a child must be immediately taken from the mother and not be put to the breast even on the first day. Our whole knowledge of tuberculosis points to the slight importance of inheritance and the tremendous importance of familial infection. Stranguaard studied conditions in 89 families in which he had known 197 cases of tuberculosis. In only 23 of the 197 cases were a parent and a child affected and these could probably be traced to post-natal infection. Reiche investigated 2,864 tuberculous policy holders and came to the conclusion that there was little to point to the transmission either of the disease or of the tendency to the disease. He remarks "The dethroning of the old pessimistic theory of an inherited predisposition deprives tuberculosis of much of its horrors, as it shows how infection may be avoided and that no one is fatally doomed from birth."

On theoretical grounds one would therefore say that healthy children may be born of tuberculous mothers and if properly treated, may thrive to adult life. Among the great mass of the people, can we attain these ideal results? Experience, judging from the literature, answers no. Zirkel reports a mortality during the first year, of such children, of 58 per cent.; Diebel, 78 per cent.; Weinberg, 78 per cent.; Pankow and Kupferle, 54.5 per cent.

We may conclude, then, that the prognosis for the child, under the very best conditions, is good; under ordinary conditions, the chances are less than even that it will live through infancy. These are facts to be carefully weighed in determining the advisability of interrupting the pregnancy.

THE EFFECT OF PREGNANCY UPON THE PULMONARY LESION.

Many years ago it was generally held that marriage and child bearing have a beneficial effect upon consumption. Cullen, the celebrated English physician, advised marriage, and Warren, in the prize essay of 1857, says that the effect of pregnancy is undoubtedly good. A few writers at the present time express this optimistic view. Thus, Rabnow and Reicher report that ten working women under their treatment, in 1909, for active tuberculosis passed through pregnancy. The pulmonary condition showed no signs of aggravation in seven cases and of the other three patients only one lost over ten pounds in weight. Kohne reports 22 cases, none of which was mild. In 16 the lung condition actually improved during pregnancy and the puerperium. Cohn says

that in 53 out of 58 cases the pregnancy did not seem to aggravate the tuberculosis.

On the contrary, the great majority of authorities hold that pregnancy, labor and the puerperium are very liable to cause either the breaking out of what is seemingly a new infection, the lighting up of a latent lesion, or the exacerbation of an active process. Nearly all teachers of obstetrics uphold this opinion. Ahlfeld says: "For the mother with tuberculosis the advent of pregnancy is a very ominous event. Runge writes: 'The feeling of comparative comfort which these patients experience during pregnancy has been taken to mean that the tuberculosis is not advancing, but in most cases this is an error. During the puerperium, such patients usually go down rapidly.'" Bumm and Fritsch make similar statements.

Several physicians who see much pulmonary tuberculosis have told me that it is exceedingly common to obtain a history to the effect that the patient was well until a certain pregnancy or that she did not recuperate as she ought to have done, after child birth. In other words, in a large proportion of the cases, the lung trouble is dated back to a pregnancy or to the time immediately after. Indeed, many authors may be cited on this point. Trembley, of Saranac, found that of his 240 cases, 151, or 63 per cent., gave a history of having the first lung symptoms during or immediately after pregnancy. Fishberg, of New York, obtained such a history in 107 of 286 tuberculosis married women (37.4 per cent.) and Maragliano in 59 per cent. of 285 cases.

During the early months the nausea and vomiting, together with the constipation so common during pregnancy, render the proper feeding of the consumptive most difficult. During the later months the increased abdominal pressure interferes with the excursions of the diaphragm and proper aeration of the lungs does not occur. Add to these handicaps the disturbance of nitrogen metabolism and we have decided factors which tend to aggravate the pulmonary lesion. Accurate statistics to support this statement are difficult to find, but Pankow and Kupferle, whose monograph is most complete, found that 94 per cent. of their open cases did badly. Reiche noted a decline in 77 per cent. and Freund in 38 per cent. Lobenstine says that all of his ten patients were worse, six of the ten dying within three months after labor.

It would, therefore, seem that the weight of authority favors the view that pregnancy does affect unfavorably pulmonary tuberculosis. All married women, with the disease, even though mild, should be told of this fact and warned against its occurrence.

Pregnancy having taken place, each patient must be carefully studied and each case judged

according to all the circumstances. It seems to me that there is sufficient evidence to justify therapeutic abortion, but for this to be beneficial and life saving, it must be done early. It should be again emphasized that this applies only to the cases of active progressive tuberculosis and that the operation is to be done only after careful study in conjunction with a competent and conscientious consultant.

With my present knowledge of the subject, I am not convinced that there is justification, in any but the rarest cases, for either the operative sterilization as advocated by Schottelius, Bacon, Schauta, Hoehne and many others, or for the X-ray sterilization, supported by Gauss, nor does it seem right to me either to remove the uterus and ovaries, championed more particularly by Martin, or to vaginally excise the fundus of the uterus and the placental site, recommended by Bardeleben.

The whole subject is a difficult one; experiences differ; there are many opinions. To pursue the right course, doing justice to the mother, to the child and to the other members of the family demands our most careful thought and the exercise of our keenest judgment.

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DIAGNOSIS AND TREATMENT OF CHRONIC NON-TUBERCULAR JOINT DISEASES (RHEU- MATISM.)

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From time immemorial we have all struggled to treat successfully the great mass of chronic joint diseases, classed, because of our ignorance, as rheumatism. It is a comparatively recent development that we have recognized specific differences in these diseases, and thus been able gradually to classify them. The first class to be sharply separated were those caused by the bacillus of tuberculosis, either human or bovine. These will not be considered in this paper.

CLASSIFICATION.

In 1900 Goldthwait brought out his classification of chronic joint diseases dividing them into three main classes, recognizable by history, symptoms, signs and course.

They were:

- (1) Infectious.
- (2) Atrophic.
- (3) Hypertrophic.

This classification was a successful one as it gave an anatomic basis for diagnosis, but was not strictly scientific as it depended both on etiology and anatomy. It went far to clear up the hopeless confusion resulting from the use of such indiscriminate terms as arthritis deformans, rheumatoid arthritis, and the like.

Since that time many classifications, such as that of Nathan, in which all cases are divided into two classes, the infectious and the metabolic, with divisions on the basis of etiology, have appeared.

In the light of recent developments, however, it is probable that even Nathan has not gone sufficiently far in the simplification of terminology, in that it seems to be true that all the chronic joint diseases are either directly or indirectly infectious. For convenience, however, I shall use Goldthwait's nomenclature for the purpose of description and diagnosis.

Chronic infectious arthritis includes all those cases which originate from infection of joint structures through the blood stream with active bacteria or their products. The most common example of this is the ordinary gonorrheal arthritis, or the arthritis with heart involvement following an attack of acute rheumatism. The cases all show marked systemic disturbances, temperature, high pulse rate, loss of appetite and loss of general nutrition. Locally the joints are swollen, tender, painful and stiff. They get better and worse. They may be red and contain fluid. The swelling

of the individual joint is spindle shaped. Careful examination and palpation show that it is the periarticular structures, synovia, capsule and ligaments that are primarily involved. The bone is never involved except for some atrophy, and the cartilage is involved only late, or in very severe cases. The X-ray picture shows no changes except the atrophy and thickening of the periarticular structures. As these joints progress they become deformed in the lines of their normal motion through the efforts of the muscles to hold them still. Thus knees become permanently flexed as do fingers or wrists. There is no deformity of the twisting type because the bones are not involved. Any number of joints may be involved symmetrically or not.

Atrophic arthritis clinically has few systematic disturbances except malnutrition due to inability to get about and take exercise. There is usually a large nervous factor in the patient's condition, and often the beginning of the disease dates from a mental or emotional shock. The onset of the disease is insidious and is apt to begin in the distal phalangeal joints symmetrically, and then spread through periods of months and years in a more or less orderly manner to the large joints. The affected joints are only slightly tender and not often painful until far along in the disease. There is rarely any fluid. The swelling is usually fusiform but moderate in amount. From the first, motion in abnormal directions is present, but normal motion is limited in amount. There is crepitation in the joints. Palpation and inspection show a low grade involvement of the periarticular structures, but the X-ray shows, from the first, thinning and erosion of the cartilage and early bone destruction in the neighborhood of the joints. This progresses until the joint is completely disorganized. At a late stage in the progress of the disease, new bone formation begins about the joints and it is difficult to distinguish the cases from the hypertrophic type, a description of which is to follow. In fact many maintain that the hypertrophic and the atrophic cases are merely variations of the same condition.

Hypertrophic arthritis is the extremely common "rheumatism" of the elderly with its Heberden's nodes and stiff joints. Its diagnosis is easy through the lack of involvement of the periarticular structures and the early prominences which form about the joint, evidently bony in character. Its onset is gradual and constitutional disturbances rarely occur. It may appear in hip, lumbar, spine, or knee, or any other joint, with pain as the only symptom. Fortunately the distal phalangeal joints are almost always somewhat involved and give us a clue to the diagnosis. The disease is very subject to remissions. The X-ray pictures always show

bony outgrowths varying in size from a needle point to a mass as large as a chestnut, grouped about the rim of the articular cartilage. Deformity occurs through the locking of these outgrowths, or through their pushing the bones out of normal relation. Limitation of motion always comes early.

These two types, the atrophic and the hypertrophic, are classed together by Nathan under the head of metabolic, because they seem to depend on changes in the metabolism of the patient rather than on infection. This is probably true. But to what are the metabolic changes due? It is becoming more and more apparent that these changes are the indirect results of bacterial activity, usually in the intestine, but occasionally elsewhere. Assuming this to be true, then is it not better to class all our chronic joint cases as infectious; thus keeping our attention fixed on the one element in etiology which offers us a clear guide to treatment? Perhaps we may make the dividing line clearer between these last two classes, which are themselves so different clinically, and the frankly infectious class described first, by calling them toxic; remembering always that the toxins are the result of bacterial invasion. All three types have, in common, impairment of the general health, and other general symptoms which point to an infectious origin.

The correct diagnosis of an individual case of chronic joint disease is then not extremely important from the point of view of radical treatment, because radical treatment of all cases depends on the removal of the infectious or the toxic focus. It is, however, very important from the point of view of local treatment of the single joints. The red, swollen joint of the active infection needs very different care from the stiff, quiescent joint of the elderly hypertrophic case.

TREATMENT.

The radical or systemic treatment of all the cases depends first on one all important step: Find the focus of infection. This focus may be absolutely anywhere: tonsils, accessory sinuses, skin, pelvis, gall bladder, large or small intestine, lungs, prostate or epididymis. We must therefore make the search with the greatest care and thoroughness at our command. Fortunately a rather large number of cases of all types are dependent on focuses in the faucial tonsils. These focuses may be so small that even an experienced throat specialist will pronounce the tonsils normal and refuse to remove them except under the strongest persuasion. So frequently have I seen this, that I make it a rule in every case, where I can obtain the patients' consent, to have the tonsils thoroughly removed. Billings of Chicago has

followed this idea to its logical conclusion, and has been able to make a vaccine and horse serum from the specific bacteria obtained from the tonsils. This he has used in many cases with extremely good results.

First, then, attack the tonsils. If they are proved not to be at fault, the search must be carried on painstakingly, and often tediously, until a source of infection is found. If found in the accessory sinuses, thorough drainage must be established, and this is equally true of the gall bladder, the prostate, the appendix, or any other organ.

Large numbers of cases originate in the activities of the various bacteria in the intestinal tract. Some time this activity appears as a true enteritis, in which case medicinal treatment of the stomach or intestines is effective. On the other hand ptosis, or intestinal kinks may allow bacterial putrefaction, with its resultant toxins. Here mechanical treatment of the stasis or ptosis is most valuable.

Often irrigations and drugs will not reach the seat of the trouble because the ptosis is a diffuse one affecting all the abdominal contents. In such cases resort must be had to orthopedic measures planned to raise the ribs and flatten the lumbar spine, and thus raise the general level of the diaphragm and intestinal tract. These measures are difficult of application, because they involve much effort on the part of the patient, and attention on the part of the physician. They consist of exercises to develop muscles, of re-education in regard to position and body poise, and often of the application of various forms of supporting apparatus. Occasionally a case is found where it is wise to short circuit or remove the whole (large) intestine.

Vaccines, serums and phylacogens if applied carefully to known infections are good. Used as they are so frequently as "shot gun" prescriptions, they occasionally hit the mark, but much more often do more harm than good.

Medicines, except those aimed to promote elimination and to improve the general health, are of little value except to relieve pain, and occasionally to protect the heart from invasion. Here the salicylates and their various derivations are most valuable.

The local treatment of the joints depends on their condition. The acute and painful infectious joint needs complete rest by fixation. In the very acute cases, I make it a practice to draw off excessive fluid or even wash out the joint. Great care must be taken to prevent deformity through contractures by means of splints. When the acute symptoms have subsided, careful massage and passive and active motion must be started early and continued persistently to restore motion of the joints. In the older joints, forei-

ble manipulation may be useful, and sometimes a joint may be restored to function by arthroplasty, or other surgical procedure. In general the atrophic type of joint must be kept moving and the hypertrophic must be kept still; that is, the atrophic or destructive type of joint is not very painful, and if kept moving will often adapt itself to a position in which fair motion is possible. The hypertrophic joint, on the other hand, is painful and motion tends to hasten the increase of the bony overgrowths. This is especially true in the acute exacerbations of the disease.

The foregoing is an attempt to state briefly the present attitude toward chronic rheumatism and its treatment. Although we are still far from a complete knowledge of the diseases, and cannot always treat them successfully, yet recent progress is sufficient to make us hopeful of mastering them ultimately.

SUPRAPUBIC PROSTATECTOMY.*

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Simple obstructive hypertrophy of the prostate is usually insidious in its onset. The patient comes to the physician complaining that he awakens more often at night to urinate. He finds that he sleeps better if he empties his bladder frequently. If these symptoms have not attracted his attention he may come complaining of a sudden inability to pass his urine after exposure to cold or moisture or excessive indulgence in alcohol or coitus. Even this sudden retention may pass off spontaneously, and consequently be dismissed by the patient as a trivial matter. It may appear again and again, with intervals of increasing frequency of urination and the patient may not present himself to his physician for examination until the final touches of calculus, cystitis and ascending pyelitis are super-added to his deplorable condition and complete his miserable and filthy invalidism.

The diagnosis of such a clinical picture is not difficult. Obstruction of the prostate is practically written across the face of it. The physician knows that the surgical removal of the gland is the only procedure that will offer a cure and he also knows that he is dealing with an aged patient who has an impaired renal and circulatory system. As a result he may lay too much importance to the renal or cardiac disturbances.

We have often seen cases of marked kidney diseases, cases in which albumen, pus and casts were found in the urine, clear up entirely

after drainage and removal of the prostate. These cases are not so much actual renal disease as kidney impairment due to irritation and probably back pressure. Cases of this type must really be classed as poor surgical risks, nevertheless, they should be brought to operation. As a determining factor for operative or non-operative treatment, the functional test by pheno-sulphone-phthalein, (of which we will say more later) is most valuable in giving us correct information of the real condition of the kidneys.

In the same manner the circulatory system is also remarkably improved by prostatectomy. Whether prostatic disease directly causes myocarditis, just as gall-bladder diseases or other infections are held responsible for myocardial changes by different authorities, or whether pyelitis and nephritis are the direct etiologic factors of the myocarditis, the enlarged prostate acting only as an indirect cause, we will not say. However, we have seen signs of myocardial disease, as evidenced by increased heart rate, irregularity and not infrequently dilatation, improve and entirely disappear soon after operation and that without any special treatment directed to the heart muscles. Patients with these symptoms are always bad risks and for them it is all important to make every effort by careful preliminary treatment to lessen the dangers of anesthesia and operation. Nor should such immediate changes for the better in the renal and circulatory systems cause the pendulum to swing too far towards an absolutely decided surgical procedure in all cases, for we would then many times be taking undue risks in advising operation for prostate hypertrophy.

THE OPERATION OF CHOICE.

The next question to be decided upon is the route of choice. We prefer the suprapubic route and in advanced cases we perform the operation in two stages.

In all operative procedures the question of mortality is of prime importance. The advocates of the perineal route claim "lessened mortality" as a great argument in their favor. Is this really a fact? It is true that according to old statistics the mortality of the suprapubic operation is very high, but does this hold today? Mortality does not depend on the operation so much as upon the functional capacity of the kidneys and the condition of the heart and general circulation, and this is the same for either method. Since we have paid greater attention to the kidneys and circulation our mortality has been materially lessened. If there is a marked cystitis, much residual urine (2 to 5 ounces) and if with the phenol-sulphone-phthalein test (6 mg. or gr. 1/10 injected intramuscularly appearing slowly and only ex-

*Read before the Section on Surgery at the 48th Annual Meeting of the Michigan State Medical Society held in Flint Sept. 4-5, 1913.

PROSTATE SIMPLE HYPERTROPHY

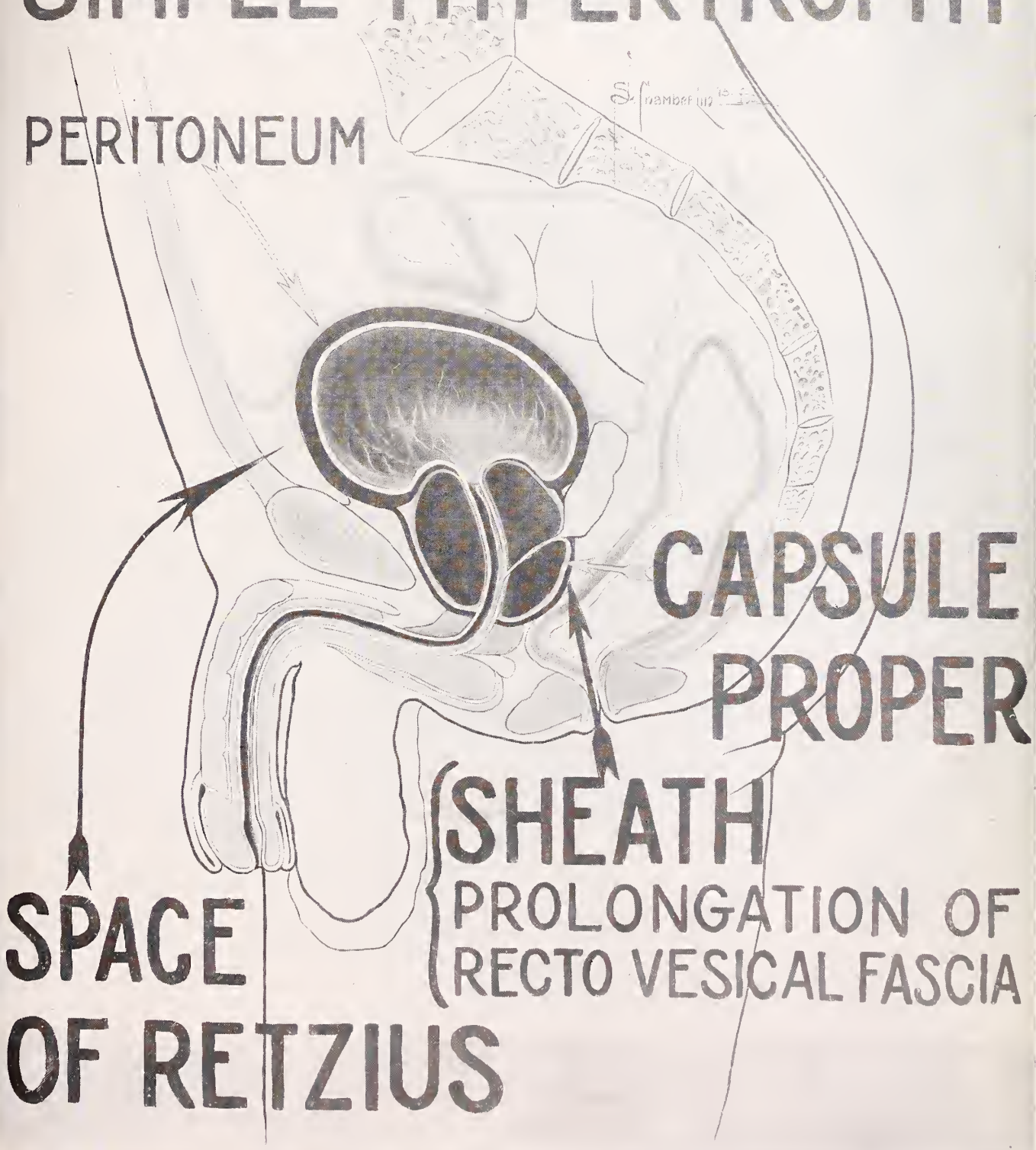


Fig. 1.

creted in the urine to the extent of fifty per cent. in two hours) a kidney insufficiency is demonstrated, we always institute preparatory treatment. This preparatory treatment consists in copious injection of water, the administration of 40 to 50 gr. of urotropin daily, repeated catheterization or better still a permanent catheter introduced into the bladder through the urethra. If this is impossible or too uncomfortable, a suprapubic cystotomy under local anesthesia is employed. With such preliminary treatment carried out for from one to three weeks the condition of the kidneys is greatly improved and the dangers accordingly immensely reduced. The removal of the prostate gland can be then safely undertaken.

ADVANTAGES OF THE SUPRAPUBIC ROUTE.

Easier control of hemorrhage, a greater possibility of preservation of sexual function, better drainage and more rapid closure of the wound are points which the upholders of the perineal method claim for the approach of the gland by this route; while less likelihood of incontinence of urine, less danger of injuring the rectum, and greater ease in operating and consequently of operating more rapidly are points which the upholders of the suprapubic method claim for the approach of the gland by this route.

The advantages usually claimed by the perineal route are, we believe, overestimated. If we consider them separately we can readily show our reasons for this statement.

EASIER CONTROL OF HEMORRHAGE.

Troublesome hemorrhage rarely occurs if enucleation is properly performed; that is if the gland is entirely peeled from out of its sheath and not the sheath and gland peeled from under the mucous membrane. When the gland is entirely removed from its capsule hemorrhage usually ceases spontaneously. The capsule is a musculo-fibrous membrane and will contract. If, however, a piece of gland tissue is left, it acts just like a piece of retained placenta acts, i. e., interferes with the contraction of the capsule and this keeps up the bleeding. Bleeding from this cause has often been the cause of great anxiety to the surgeon and as a result various gauze packs have been devised. These will rarely be required if enucleation is done entirely within the capsule. Occasionally it happens that bleeding, in spite of proper technic, does occur. This is especially so in cases which occur in prostates that have been the seat of long continued inflammation. Here the gland is so adherent that the enucleation necessitates a considerable amount of trauma. For these cases we have provided a small opening at the tip of the cystotomy staff, through

which a ligature can be passed and to this a piece of gauze is attached which can be made to fill in or pack the cavity from which the gland has been removed, by simply pulling out the staff. (See Figure No. 5.)

GREATER POSSIBILITY OF PRESERVATION OF THE SEXUAL FUNCTION.

This, on account of the age of these patients, is of minor importance, yet we believe the integrity of the seminal ducts is more liable to be preserved by the suprapubic operation. Tandler and Zuckerlandl¹ and Lorusley² have demonstrated that the posterior lobe, which very rarely enters into the hypertrophy but which is rather in a state of pressure atrophy, is separated from the rest of the gland by a distinct capsule. It is with this lobe that the ejaculatory ducts are closely connected and because this lobe is left undisturbed in the ordinary suprapubic operation for benign hypertrophy one can readily understand why the sexual state remains unchanged after this operation. This cannot be said of the perineal operation for here the operator divides this lobe in order to gain access to the hypertrophied part of the gland above and in so doing is in great danger of also dividing the ejaculatory ducts and consequently of destroying sexual power.

BETTER DRAINAGE.

This argument sounds well but on closer consideration it can easily be seen that it is not so forcible. Drainage of the bladder is not accomplished by gravity as would be the case for instance of draining a non-collapsible cavity. Bladder drainage is principally brought about by the contraction of the bladder itself and by the intra-abdominal pressure, increasing and diminishing in a wave-like motion with each inspiration. The great mistake in cases where drainage through the suprapubic wound is faulty, is the use of a small calibre tube, and of inserting the tube too deeply in the bladder. Formerly we had a little difficulty in this respect but since using a very large calibre tube ($\frac{3}{4}$ inch in diameter) and since inserting it only an inch beneath the anterior bladder wall, we have had practically no difficulty in draining the bladder suprapubically.

MORE RAPID CLOSURE OF THE WOUND.

This is probably the one great argument in favor of the perineal operation. It is true, that perineal wounds do very often close more rapidly but what about the incontinence of urine that so frequently accompanies this operation? Of this we will speak later.

1. Folio Urologia, March 1911.

2. Am. Jour. Anat., July 15, 1912.

ENLARGED CENTRAL LOBE POOL RESIDUAL URINE

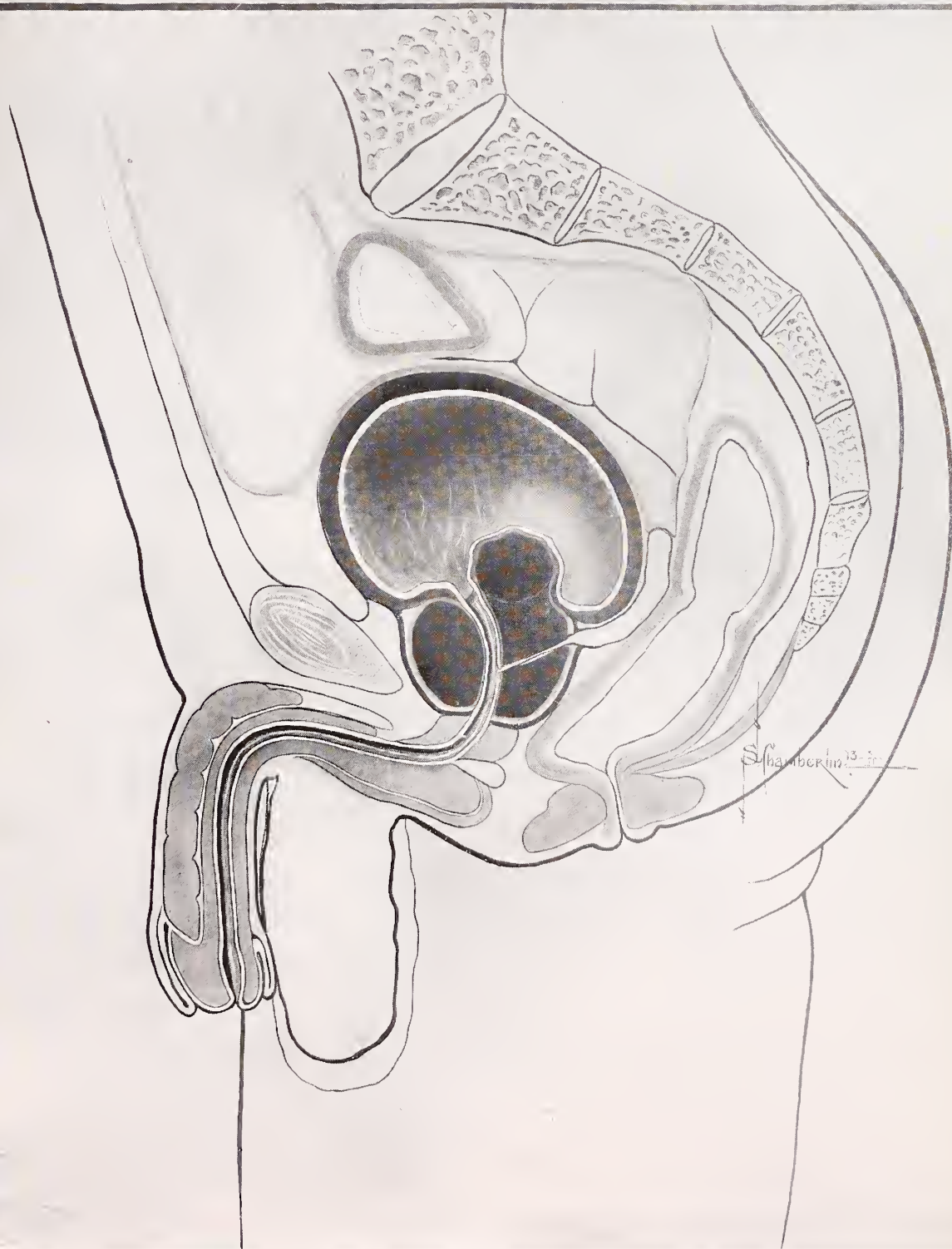


Fig. 2.

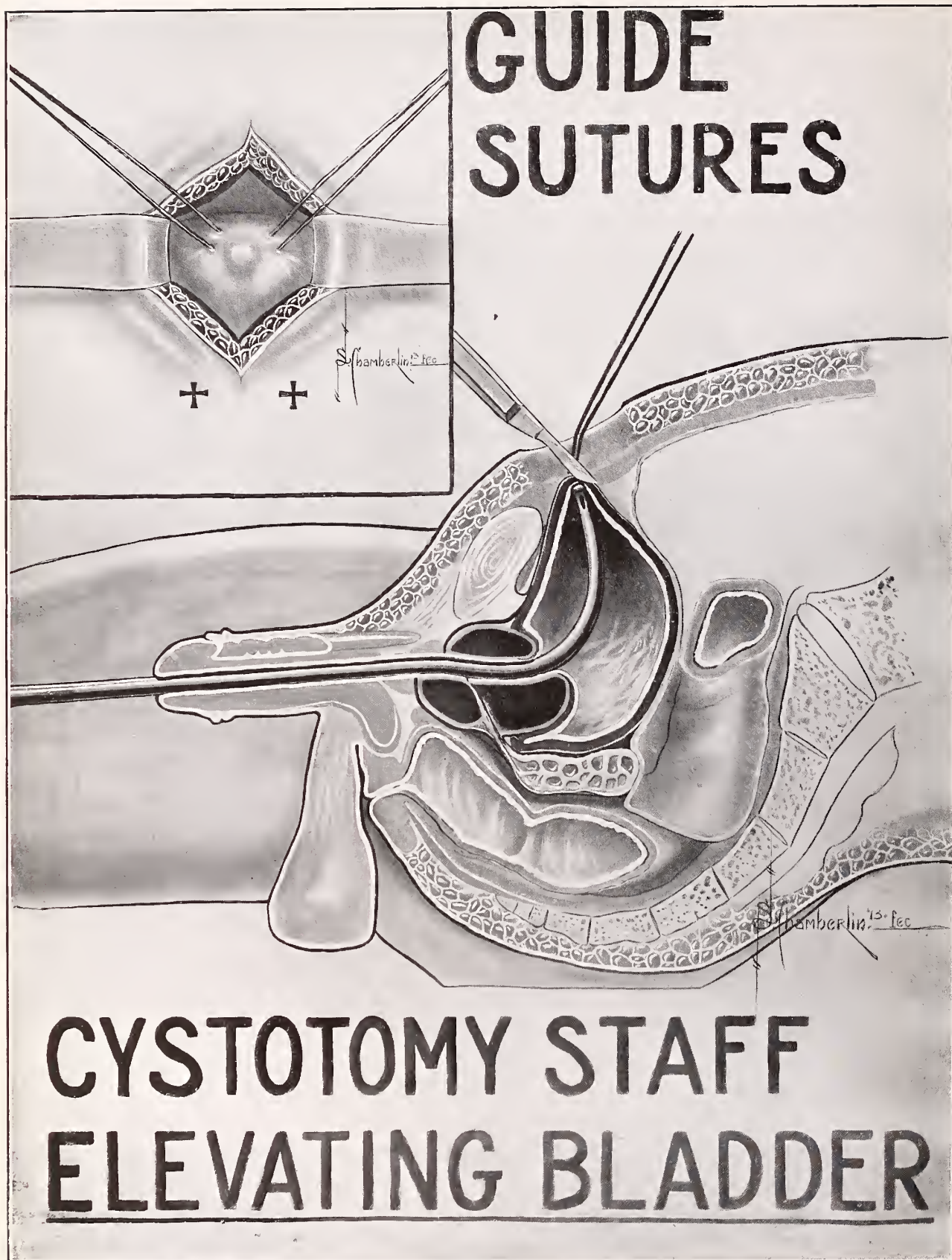


Fig. 3.

POST-OPERATIVE COMPLICATIONS.

Besides mortality the functional results that follow any operation should ever be prominent in the mind of the surgeon. In the treatment

of these cases, the ability of the patient to empty his bladder and more important still his ability absolutely to control the flow of urine is the functional result we seek to obtain. Can this be obtained by either operation? In the

suprapubic, yes, for in none of our suprapubic operations has there been any difficulty in controlling the stream; in the perineal operation this result can be obtained in a large percentage of cases but it is quite impossible to determine which cases will have absolute control and which will have only partial control or complete incontinence.

Incontinence is caused by injury to the "cut off muscle" or its nerve supply. In the perineal operation, this muscle, (the compressor urethra) and its nerve, (the perineal branch of the internal pudic nerve) are very apt to be cut or in some way injured. By this route it is almost impossible to avoid injuring these structures to a greater or lesser degree and as a result we get an incontinence of urine, which, depending upon the nature and extent of the injury, will be partial or complete, temporary or permanent. It is incontinence of urine which has caused so many patients to defer the operation until the damage to the bladder and kidneys, caused by the obstructing enlarged prostate, is practically irreparable.

A recto-vesical fistula is a post-operative complication which in suprapubic operations is practically unheard of. In the perineal, however, from the anatomical position of the operative field, this complication is not so rare and has occurred in the hands of the most able surgeon.

Besides eliminating incontinence and recto-vesical fistula the suprapubic method offers another advantage which is all important—especially when operating upon the aged and prostatectomies are practically always performed on this class of patients—i. e. greater ease in operating and consequently of operating more rapidly. We believe the suprapubic operation can be done in half the time it requires to do the perineal. The bladder can be opened in one or two minutes and the enucleation at once begun. The completed operation should not take longer than ten or fifteen minutes.

TECHNIC EMPLOYED.

The technic we employ is as follows: Nitrous oxide and oxygen anesthesia with a preliminary dose of morphine and atropine is the anesthetic we prefer because it is not followed by nausea. It permits the patient to take liquid and other nourishment soon after being returned to his bed.

The bladder is cleansed and emptied. The cystotomy staff (Fig. 3) is then introduced and the end pushed well up against the anterior bladder wall. A short incision one and one-half to two inches in length is made just above the pubic bone. Fascia and muscle are divided when the cystotomy staff will be seen and felt pushing the anterior bladder wall up into the wound (Fig. 3.) The peritoneum is

pushed back and well out of the field of operation. Two guide sutures (Fig. 3) are now placed into the bladder wall on either side of the projecting point and the bladder is quickly opened between these directly on the tip of the staff. The index and middle finger of the bare right hand are now introduced into the bladder, the assistant drawing the staff out in front of them while the index finger of the gloved left hand is lubricated and inserted into the rectum. (Fig. 4). While the finger is being inserted into the rectum the fingers in the bladder are exploring it for stone. The finger in the rectum now raises the gland upward to facilitate enucleation. In beginning the enucleation, experience with these cases is a great asset to the surgeon for sometimes only one large projecting lobe causes the sole obstruction and the removal of it may be all that is required. It can be made to peel out just as one can peel out a subserous fibroid of the uterus. (Fig. 4) It has, as it were, a surgical capsule of its own. In the ordinary so called general hypertrophy (Fig. 2) we use the method of Kreyer as modified by Squier. With this method the index finger in the bladder, instead of being forced through the capsule of the most prominent portion of the gland, is inserted far into the urethra. When the anterior portion of the enlarged gland is felt, the finger is pushed through the urethral mucosa. By this time the internal sphincter, already dilated by the enlarged gland, is still more dilated and is not severed. The finger is not only pushed through the mucosa but also (and that is very important) through the capsule. This procedure is performed first on one side then on the other and then posteriorly, when the enlarged lobes will be delivered into the bladder. The urethra will tear at its weakest point which is just above the ejaculatory ducts. This procedure leaves the posterior lobe intact and at the same time preserves the ejaculatory ducts. Irrigation thus far, except for the initial bladder washing, has not been used. If clots form quickly these are sometimes washed away but more often wiped away with dry sponges. When the bladder is well cleaned a large drainage tube ($\frac{3}{4}$ inch) is inserted to the extent of an inch or inch and a half. Inserting the tube too deeply will cause spasm of the bladder wall. The guide sutures are now tied across the incision in the bladder wall; four or five catgut stitches are used to close the bladder tightly around the tube. The muscle and fascia are drawn together in the usual way and two or three silk-worm gut sutures complete the operation.

POST-OPERATIVE TREATMENT.

The after treatment is comparatively simple. Here meddlesome interference and fussing does

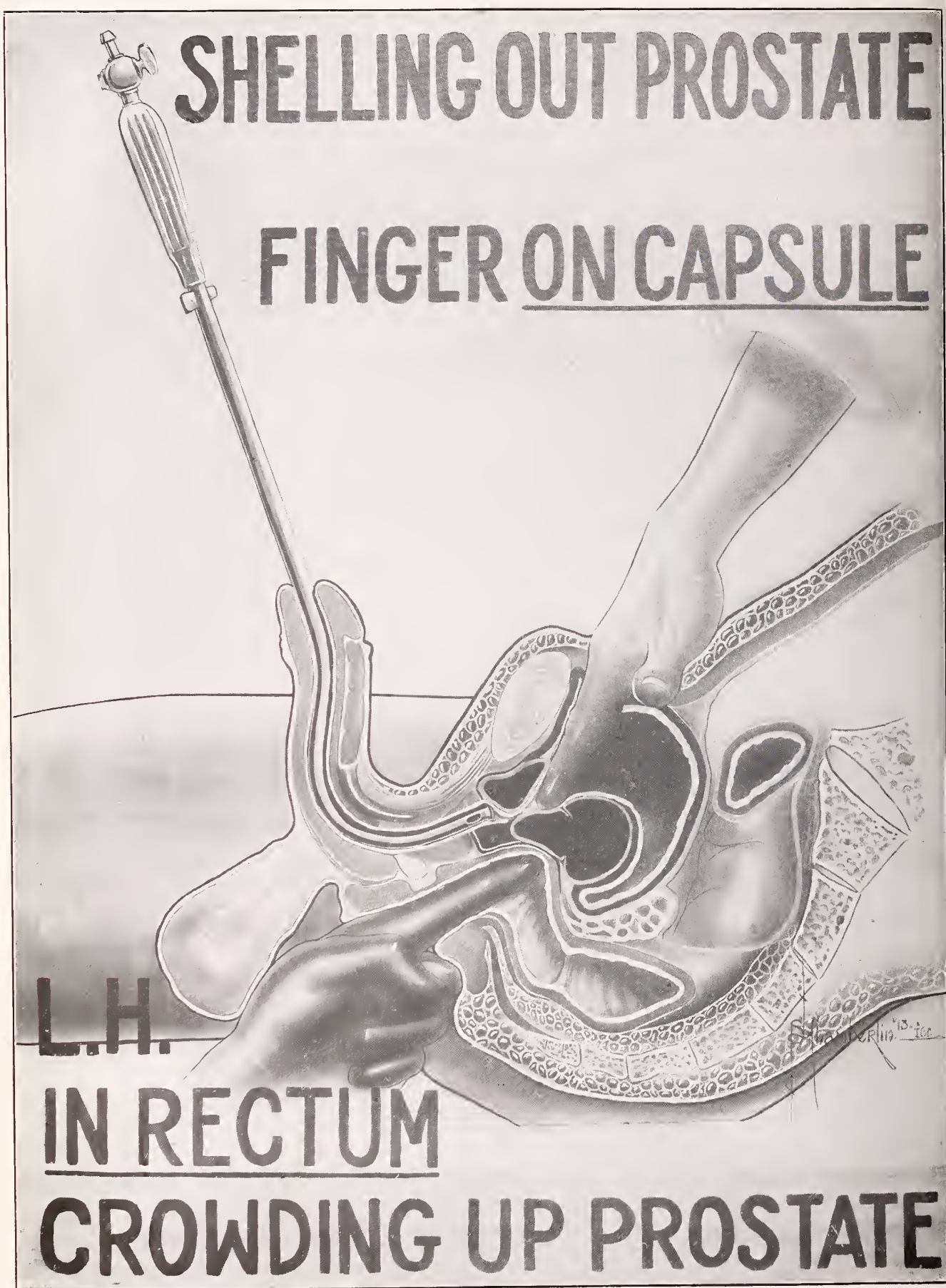


Fig. 4.

more harm than good. If the drainage tube is properly inserted and is of proper size, there will be free drainage and irrigations and washings as absolutely contraindicated. Copious injections of fluids per rectum for twenty-four hours and by mouth as soon as the patient's stomach will bear it (which if nitrous-oxide, oxygen has been used is usually in two or three hours) is the only flushing that is necessary. If with these measures the urine still remains highly acid, with a tendency to the formation of uric acid crystals around the wound, then the internal administration of urinary alkalies (potassium acetate, potassium citrate or liquor potassae,) is indicated. No amount of bladder irrigation can supplant the internal administration of alkalies and no amount of bladder irrigations will prevent the accumulation of uric acid crystals. All that is necessary, as far as local treatment is concerned, is a change of dressings should the urine leak along side of the drainage tube. The drainage tube is left *in situ* for from six to nine days; after removal of the tube the urine will still escape from the suprapubic wound and it will then be necessary to change the dressings every two hours. At the end of the second week the patient is encouraged to urinate. Before this time it is not well to force urine over the prostatic site which is covered only by granulations. Complete healing of the cavity from which the prostate was removed requires longer time but at the end of the second week, healing has sufficiently advanced to allow urine to pass over its surface. At the end of the third or fourth week, and at longer intervals after, it is well to pass a soft catheter or a sound (very gently) into the bladder to insure a good opening of the vesical end of the urethra. Local treatment other than this is uncalled for and we believe really harmful.

It is generally conceded that old patients withstand the recumbent position poorly and for this reason it is well to place them in the sitting position as soon after a prostatectomy as is consistent with their general condition which will usually be on the second or third day.

CONCLUSIONS.

In summing up we would say: That for the ordinary prostatectomy the suprapubic operation is the method of choice. It has a low mortality; it will insure control of the flow of urine; and can claim all the advantages that the perineal method can claim except, perhaps, that it requires a little longer time for the closure of the urinary fistula. Its success depends: 1st, Upon the preliminary treatment with copious amounts of fluids, urinary antiseptics, and in some cases bladder drainage either by catheter or a preliminary cystotomy;

2nd, Upon rapid execution of the operation itself with ample provision for free drainage; 3rd. Upon non-meddlesome after-treatment, which simply means copious injection of fluids, early sitting position and the administration of alkalies if indicated to control urinary acidity.

308 Washington Arcade.

DISCUSSION.

DR. JUDD, ROCHESTER, MINN.: I enjoyed Dr. McLean's paper very much; I think he has emphasized the important points as we have seen them. I think the first point that he emphasized so strongly was the two-stage operation, or two-stage treatment in these cases. I believe that that is the one thing that will reduce the mortality in prostate work more than anything else. Of course, it is not necessary to do a two-stage operation in all cases; but in case of low specific gravity, and a great deal of residuary urine, we are able to accomplish a great deal; whether it is the relief of the back-pressure on the kidneys, in withdrawing the residuary urine or whether it is some change in the absorption, to the bladder, I do not know. We do know that catheterization of these old men—we know that frequently one or two catheterizations will drive them into a uremic condition. Recovery from the withdrawal of this residuary urine frequently does not come for more than a week or ten days.

It is an interesting picture I think, to follow these cases: A man will come into the office with six or eight ounces of residuary urine, due to an enlargement in the prostate, and if we have a recent examination, which is not always the case, we think that probably he is a pretty good risk; we catheterize him; and again may be in two or three days, or the next day have a specimen of the urine examined, and almost invariably the specific gravity will have dropped several points—sometimes down to 1005 or 1004; and within a week, or perhaps the next day or so he comes in and says he has not been able to sleep, and he has lost his appetite. I think we can get rid of these nervous symptoms. The condition we do not understand still, is being able to judge technically. We do not see mortality from the technic of the operation; hemorrhage for instance, we know how to control, and seldom have a hemorrhage that is at all alarming. We know how to manage the asepsis, so that we seldom see an infection that amounts to anything.

I believe that Tandler has probably shown us something in saying that in doing what we call prostatectomy we do not remove the prostate at all; we take the edema from the prostate. It may project bi-laterally, the enlargement, into either side—the lateral lobes, and the posterior lobes—so that what we call the capsule, the surgical capsule, probably is a prostate gland. Tandler has a great many specimens in his laboratory in Vienna, and practically proves that.

DR. WM. FULLER, CHICAGO: I have not much to add to this discussion but would like to say a word or two with reference to the preliminary treatment of these prostates. I believe that the outline that the doctor gave us as to the two-stage operation is all right sometimes; but I believe that in many cases though, that occur spontaneously, or rather suddenly, if it is possible, as Dr. Judd said, to catheterize the patient, and have a careful irrigation of the bladder, within three or four or five days it will so completely relieve the symptoms of the patient that an operation will be completely outside

GAUZE PACKED IN PROSTATIC CAVITY

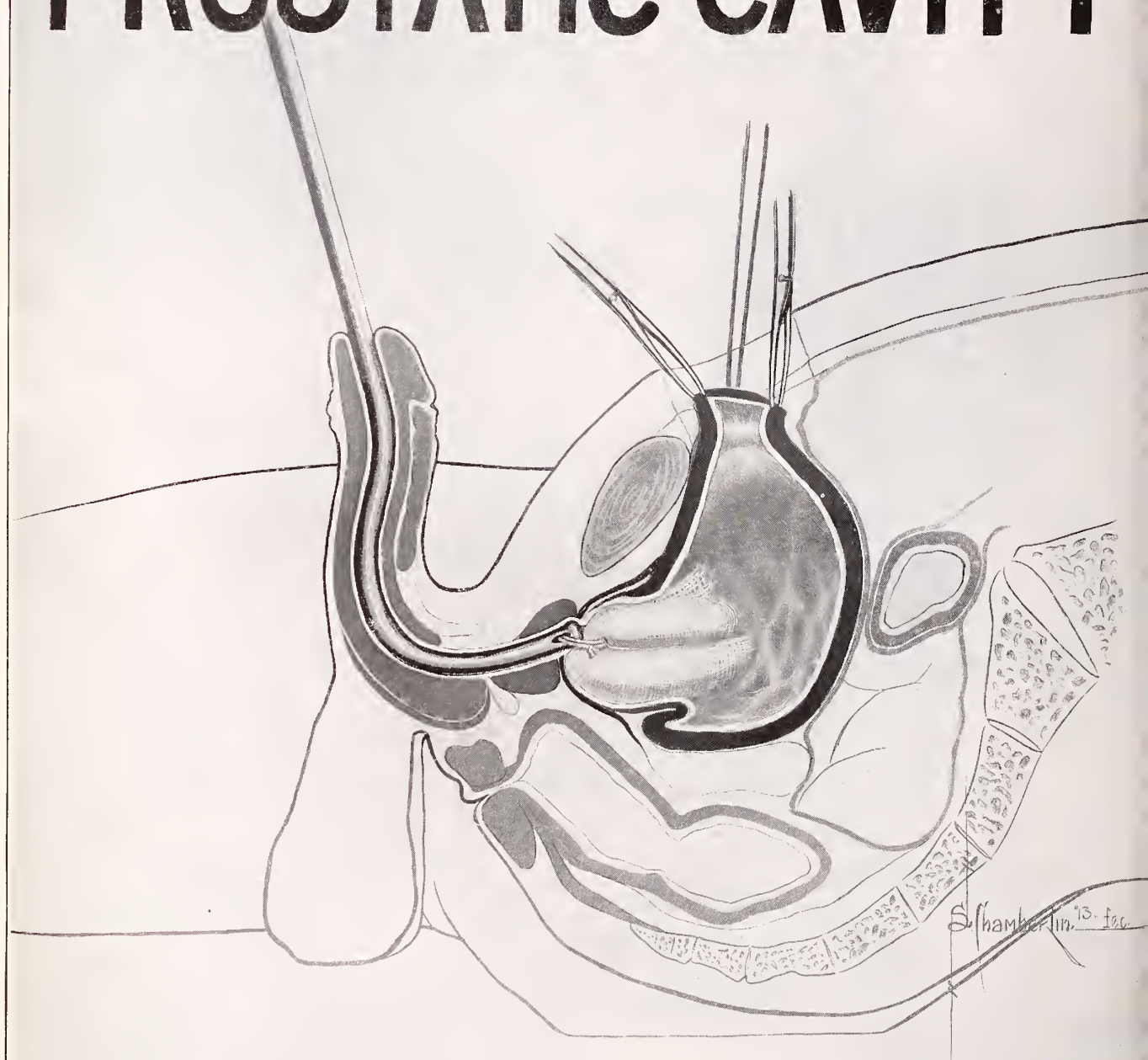


Fig. 5.

of consideration at all—that is to say the patient improves so markedly sometimes that he will not consider the operation at all.

I do not believe the size of the prostate necessarily creates an indication for operation. We have often seen prostates very markedly enlarged with no obstructive symptoms at all and when obstructive symptoms do come on, we find that irrigation will (which is done with nothing but sterile water, or a normal salt solution, or something of that kind) do this work alone, and we will be cheated out of an operation; the patient improves so markedly that he will not consider an operation at all. I think that where an operation is to be done it should be suprapubic; and I think the operation that the doctor described about draining the bladder is all right. But I believe in these cases that occur very suddenly, where the obstructive symptoms are so marked, and mostly in old men, past sixty-five or seventy years of age—I believe in these cases the operation should be perineal. First, because it is an operation that can be done just as quickly, or a little bit quicker I think, perhaps, than the suprapubic operation. I believe the necessity of preserving the sexual functions in a man seventy years of age is not important.

Now, I think that there are fewer dangers in the perineal operation than in the suprapubic operation. I believe that perineal prostatectomy properly done is not a severe operation, and is a quicker operation than drainage of the bladder, and I think this has been proved.

DR. DEAN LEWIS, CHICAGO: I am very glad to hear Dr. McLean's paper and I believe we are all coming to the idea that suprapubic prostatectomy is the operation of the future. It seems to me the way we increase our results as far as minimum mortality and permanent recovery is concerned, is by increasing our indication for prostatectomy and doing that earlier.

I was very much surprised to hear Dr. Fuller state that so many of these patients recovered after irrigation of the bladder because the more I see of prostatectomy the earlier I operate on them. When I am going to do the operation, after irrigation of the bladder, I often wonder what other surgeon did the operation, after the patient has left me because I very often think that they go to some one else.

As far as the technic of direct suprapubic prostatectomy is concerned, it is very simple. I do not know of any simpler operation than enucleation of the prostate. The only place where we have trouble is choosing the patients. Some men are very old at fifty years of age and some men are very young at seventy; where you have a man with arteriosclerosis, I think that is the main indication against your operation, and it is the only indication that may make a man do a catheterization or irrigation of the bladder for any length of time. As far as after-treatment of prostatectomy is concerned, the simpler, the better. I cannot agree with Dr. McLean when he thinks that a large tube is necessary for drainage in suprapubic prostatectomy. I think a large hard rubber tube that is advised in many cases by many surgeons after removal of the prostate is absolutely wrong.

It has been my custom for the last three years to use a small cigarette drain passed in the prostatic pocket and a small drain passing in the pre-vesicle spaces; both drainage tubes are removed within twenty-four hours, and that ends the after-treatment of prostatectomy. There is no irrigation of the bladder or anything done following that. The suprapubic opening generally lasts about four-

teen or nineteen days on an average; and the only real serious trouble I have ever had with prostatectomy is in cases in which the bladder opening closed on the third or fourth day, and urination was started early; because stretching the prostatic pocket in those cases has caused considerable inter-vesicle hemorrhage which is of very great discomfort to the patient afterwards.

DR. TOLLES: I would say that I have done the perineal operation until I had some anatomical work with Professor Tandler that has been mentioned, and he convinced me that the perineal operation is not correct. In my experience, since I have been thoroughly satisfied that the suprapubic is the operation of choice in these cases, I believe that the one little thing which I guess was overlooked by the author in the technic of the operation is indicating the route plainly and dissecting out this tumor in the prostate. If you get through the mucous membrane to the bladder it comes out very easily; but in the hands of the amateurs, sometimes they fail to get into this place, and they have trouble. I think that is the only one little difficulty I have had in the technic, which of course will be simple to the man who has had a wide experience in the removal of the prostate gland.

DR. REYCRAFT: I have taken a great deal of interest in the paper that the doctor has given us because it is a matter that seriously confronts us, and we do that operation at times. It is all right perhaps for men who are in large centers and who see a great deal of it but those of us who are not in these large centers and have to do this operation, we have to think of some other means than what have been indicated by these men that have spoken. Had I made the charts that are made there I think I would have started prostatectomy from the perineal side. Those were made, it seems to me, from the point of the man who operates suprapubically. I do not believe, if the chart was made with the prostate a little nearer the surface in the perineum, but what that would be convincing that the perineal route probably was the best. We are not always satisfied that we get in through the side, for instance, and often we find that the perineal wall will come down. If we get in there and get the urine off it is all right.

As far as I am concerned, I always have done the perineal operation, and always thought it was the best. I have not had very much experience and when it comes to opening the wrong side of the rectum, and going up in there, there is one thing certain, that for the hemorrhage we get, we have drainage for it. Leaving the bladder open on the upper side, I cannot see but what you are going to have perhaps a dangerous fistula from the inside.

As far as the operation is concerned and the time of the operation, in some places it may be all right for a man to make the first operation of draining the bladder; but in little centers the people wonder why we have not completed the operation, and nine times out of ten will almost desert you, or ask you very many questions that you do not want to answer. The important point is not to make two operations. I do not believe the people would stand for it, and I do not believe there are many of the surgeons here that are talking this morning that make the second operation. I do not believe, further, that there is a man here that has spoken this morning but what removes the whole prostate when he starts to do it. I would like to ask some of the gentlemen that have talked here how many times they did not deliver the three lobes. I think you are wrong to talk one thing and do another. Do your work, that is the way I believe, gentlemen, and you get there.

As far as the time of the operation is concerned, any man who takes over twenty minutes in doing an ordinary prostatectomy, by the perineal route, is taking too long a time. I do not think any man, to go through the perineal way, and stretch the muscles there and get in should take more than fifteen or twenty minutes, in which time I can do it myself—and the doctor here claims that that is what he takes for the suprapubic. Now, as the matter of time is concerned I think that any surgeon that has operated, can do the perineal operation—go through the perineal route in the desired time.

I have no intention of taking up much of your time, but I do like the lower route, as far as I am concerned, and I think that if the man who writes this paper would turn around, and for the next dozen cases do it the other way, he might be a man who would himself desert the suprapubic route and get back to the old way of doing things. I like the drainage; I like the urination to follow out from it, and as far as a fistula remaining in the perineum I will tell you I don't believe there is any of you here that have done a complete enucleation of that kind, of having been troubled with the fistula opening, and drainage of urine in the perineum longer than two months at least, at the most.

DR. CARSTENS: I would like to ask the last gentleman if he ever tried the suprapubic route?

DR. REYCRAFT: No sir, I have not.

DR. CARSTENS: "No sir." And that is just it; you are asking the other man to try your route, and you won't try his. Now you believe that all these men are wrong. A man that has only tried one route is not capable of judging the other ones, or discussing it. The only one that should discuss it, is the man that tries them both. I believe that there are cases where one route is better than the other; because sometimes the prostate comes away down, and you can easily get it out by the perineal route, while in the other cases it is up towards the bladder, and you can get it out a great deal better with the other method. The general experience is that the suprapubic route is the best; but you must try them both.

DR. WALKER: Unlike Dr. Reycraft, perhaps, I have done this operation by both methods, and I have come to prefer the suprapubic method rather than the perineal. I think in all this work there is a personal element. When I have seen Dr. Young do this operation by the perineal route, in his most expert and artistic manner, I naturally feel that if I could do it that way as well as he does that that would be the way to do it. But in my experience I think the suprapubic method is the one of choice.

DISCUSSION OF HEART BLOCK WITH REPORT OF CASE.*

MARTIN A. MORTENSON, M.D.

BATTLE CREEK, MICH.

During the last few years a great deal of attention has been given to the pathological physiology of the heart, especially to the arhythmias. This has been due in a large measure to the recent ideas advanced concerning the mechanism of the heart beat based on the transmission of the impulse from the sinus

nodes through the auricle and bundle of His, or auriculo-ventricular bundle. Heart block refers to an interference or disturbance in the transmission of the impulse through this bundle.

From a historical point of view it may be of interest to know that the symptoms of what we now recognize to be heart block were first reported by Adams in 1827. His case was that of a revenue officer with a pulse rate of 30, complaining of cough, fainting and "apoplectic attacks," during which the pulse rate became even slower and recovered without paralysis. The same year Burnett reported a similar case in even greater detail and referred to Morgagnis, who in 1761 reported two cases of "epilepsy with slow pulse." Stokes described a case with considerable care and detail in 1846 and since then the "Adams-Stokes-Syndrome" has become a permanent symptom complex in medical literature. These observers had no definite conception of the pathology of this condition, and as far as the heart was concerned only noted the slow pulse rate.

In 1882, Chauveau described a case with a pulse rate of 24 per minute, with occasional attacks of vertigo and loss of consciousness. He went a step farther and noted that while the ventricles beat 24 per minute the auricles were beating at the rate of 66 per minute; showing an auriculo-ventricular dis-association. He experimented on a horse and found that on stimulating the vagus the auricles beat faster than the ventricles, and hence ascribed the dis-association to over stimulation of the vagus. The next step in elucidating the pathology of these cases was taken by Ludwig and Gaskill when they showed the impulses were blocked between the auricles and ventricles. They supposed the trouble to be in the nerves.

Up to 1893 it had been denied that there existed any muscular connection between auricles and ventricles, but at this time Stanley Kent demonstrated there was a small muscle bundle connecting auricle and ventricle. About the same time and independent of Kent, Wm. His Jr., described a muscle bundle between auricles and ventricles in the mouse, dog and man, and since then the group of muscle fibers has been commonly known as the bundle of His.

I was led to report this case of auriculo-ventricular dis-association because of the extreme symptoms that developed during "Adams-Stokes Syndrome." After a rather careful review of the literature I have been unable to find a single case where the pulse beat was absent for more than 50 seconds and the patient still survive.

CASE REPORT.

HISTORY: Mr. T. J. S. entered the Battle Creek Sanitarium December 31st, 1912, age 43, merchant

* Read before the section on Medicine at the 48th Annual Meeting of the M. S. M. S., held in Flint Sept. 4-5, 1913.

by occupation. Family history negative. Had the milder diseases of childhood, diphtheria at 18 years of age; at 21 had left sided pneumonia or pleurisy. No sore throat or fevers. Has had no rheumatism except some pain in shoulder joints that he thinks rheumatic in nature. Denies venereal infection. Has never used tobacco, liquor, tea or coffee. Patient has been a rather hearty eater, especially during a period of ten years when he was an iron moulder by occupation. Dates present trouble to a little over a year ago when he had a week's illness, suffering a good deal of pain in stomach. During this period one day while at dinner he suddenly became dizzy, unconscious, and fell out of his chair. Has been told that he had some convulsive movements during this spell. He regained consciousness in a few seconds and says he experienced no pain before or after the attack. In the course of a few days regained his usual vigor and attended to his business until about three months ago, when he had another spell, similar to the above, in his place of business; a little later had a third attack on the street. Five weeks ago was forced to quit work on account of these mild convulsions, because they increased very much in frequency and severity. The last two or three weeks has had them at intervals of ten minutes to an hour apart during the day. Has had occasional days when very little trouble was experienced, and until a couple of nights ago had no convulsions during the night as far as he knows. Has been compelled to remain in bed or in a reclining position almost continuously the last five weeks. If he raises his head he becomes dizzy and faint, a condition he always notices when an attack is coming on. He has recently learned from his physician that his pulse has been very slow during these attacks and that for the past three years his pulse has been in the neighborhood of 40 or less per minute. Still complains of some pain in the stomach at times after eating. Appetite has been fair. Belches considerable and when he has much gas in the stomach or bowels the attacks are much more frequent and more severe. The bowels have been constipated for years and he has been forced to depend on laxatives or enemas to obtain proper evacuations. Has never had any headache.

EXAMINATION—Frame is medium size; muscles are well developed; nutrition is below normal; complexion is sallow; mucous membranes anemic; tongue is dry and badly coated; teeth in fair condition; chest is well formed; expansion is fair. Percussion gives hyper-resonance anteriorly. No examination of chest posteriorly because of extreme weakness of patient. Respiratory sounds harsh but no definite rales are heard.

THE HEART—No precordial bulging. Apex beat is palpable in fifth intercostal space, mid-clavicular line. The pulsations range from 8 to 12 per minute and correspond to the pulse rate in both radial and femoral arteries. The pulse is strong and voluminous. No impulse could be felt between these beats. In the neck very slight waves could be seen beating at a rate of about 80 per minute. Percussion of the heart revealed only slight increase of cardiac dullness to the left, due to the heart being well covered with lung tissue. Heart sounds are very distinct at the apex, but no sounds could be heard between the visible and palpable beats, and no murmurs are heard. Second pulmonic sound is slightly accentuated. There is no edema of the extremities. Abdomen is rather flat. Some tenderness in the epigastrium with tympany over the stomach. Liver dullness extends from fifth rib to one-half inch below the costal margin and can easily be palpated. Spleen is not enlarged. Reflexes are normal. No convulsions occurred during examination.

JANUARY 1ST., 10 A.M.—Spent some time in patient's room and found pulse rate 18 to 23 per minute with absolutely no evidence of cardiac activity between the beats except occasional waves, that could be seen in the neck. During an hour's observation several convulsive seizures occurred. After a series of fairly regular beats the pulse would stop completely for periods lasting from 15 to 65 seconds; with cessation of the pulse the patient would begin to turn pale and as this progressed unconsciousness gradually developed, the pupils dilated to an extreme degree, respirations changed to the Cheyne-Stokes variety and a mild convulsive seizure would develop involving the muscles of the face and arms, and some times a stiffening of the legs. The eye balls rotated to the left and upward. By this time the patient would be extremely pale, in fact, the face appeared bloodless. The convulsive seizure would cease and one would be justified in thinking the patient dead. At this point an unusually vigorous apex beat was seen and immediately the face and hands would become congested with blood. The suddenness of the change from extreme pallor to congestion was not only interesting but amazing in degree. With the return of the blood to the skin the convulsions would cease and the patient would regain consciousness, and usually complained of a feeling of exhaustion. During these attacks there was no evidence by palpation of cardiac activity as far as the peripheral arteries or apex were concerned. Auscultation revealed no heart sounds whatever. Pulse tracings taken during the attacks were unsatisfactory, because of the convulsive movements, but there was certainly no evidence of ventricular activity. A small wave appeared that might be interpreted as auricular in origin. Tracings taken between attacks showed the pulse rate varying from 12 to 24 and in one or two places small waves were produced between the ventricular waves that might be considered auricular.

After observing several of these attacks I gave one-one hundredth of atropin hypodermically and for about an hour no attacks occurred, but the pulse rate continued to remain under 20, and some of the time as low as 8 and 10. I urged the patient to take a little milk and in a short time the attacks began to recur in which the periods of ventricular activity averaged a longer duration than before attacks were observed by myself and colleagues, in which there was no ventricular activity from 43 to 65 seconds.

January 2nd, 36 hours after entrance to the institution, the patient died in one of his attacks, after having had between 45 and 50 attacks during the period of observation.

DIAGNOSIS.

A diagnosis of complete heart block was made in this case because of the very slow pulse, the frequent occurrence of "Adams-Stokes Syndrome," the observation of a pulsation in the neck having an entirely different rhythm than that observed in the arteries. The injection of atropin did not change the pulse rate or alter the "Adams-Stokes Syndrome." In making a diagnosis of heart block as a rule we depend first of all upon polygraphic tracings and note the A-C interval in the jugular tracing. If this is more than 2/10 of a second in length it is considered that the transmission of impulse from the auricle to the ventricle is delayed and in cases of complete heart block

we often find the auricular wave in the jugular occurring independently of ventricular contractions. Another means of diagnosis is a fluoroscopic examination in which the contractions of the auricles and ventricles are timed and in that way the rhythm can be determined. Perhaps the best diagnostic means that we have at our disposal is the examination with the electro-cardiograph. This shows the auricular and ventricular contractions independently and the rhythm of each can easily be determined in this way. Unfortunately, none of these measures could be used in this case.

The occurrence of the "Adams-Stokes Syndrome" alone does not always justify us in making a diagnosis of disease of the auriculo-ventricular bundle, because cases have been reported by good observers in which we must still consider over-stimulation of the vagus capable of producing the syndrome. The syndrome is evidently due to cerebral anemia, the result of ventricular stoppage and may occur at the beginning of complete block, in the midst of complete block, as in my case, or by over-stimulation of the vagus. Complete heart block and "Adams-Stokes Syndrome" are by no means synonymous, as the term heart block only refers to the dis-association between auricles and ventricles and when they beat at independent rhythms, then heart block is complete. Partial heart block varies from a simple delay in the transmission of the impulse to a loss of some of the impulses, one out of two auricular contractions passing through, or it may be one in three, four, five, or six, giving us the varied rhythms of auricles and ventricles. Another disturbing factor in this cycle of transmission of the impulse may be a lack of susceptibility of the ventricles to the stimuli and consequently an independent ventricular rhythm is established. Gossage of London reports a case in which this seems to have occurred. Independent ventricle rhythm usually varies from 30 to 40 beats per minute.

We are prone to think that heart block only occurs in the latter decades of life; it is true it is much more frequent in old people, but it may occur in early life. Fleming and Kennedy of Glasgow report a case of diphtheria in a child 10 years of age, in which there was an acute inflammatory condition of the heart muscles and auriculo-ventricular bundle, producing complete heart block, cardiac failure and death. In a broad sense the etiological factors in heart block may be said to be anything that causes a degeneration of the myocardium and in any way involves the auriculo-ventricular bundle; and this degeneration may produce partial or complete heart block, and "Adams-Stokes Syndrome." Lewis of London has collected a series of cases of complete heart

block in which the following pathological findings were observed: acute inflammation of the bundle of His, of rheumatic and diphtheritic origin, gumma interrupting the bundle, ulcerative endocarditis, sclerosis, fibrosis, calcification and fatty degeneration. Others have reported hemorrhage into the bundle and termed it apoplexy of the bundle of His.

The prognosis of cases of heart block is not the best, but many of them surprise us by the length of time they live in a comparatively comfortable condition. Personally, I have had three cases of heart block under my care during the last eighteen months. The case just reported died in the course of a few hours, but the history would lead us to believe that he had suffered with degeneration of the auriculo-ventricular bundle for at least two or three years; the condition probably dating back previous to the time when the pulse was noted to be below 40. One other case has an aortic stenosis and for a year or more has had heart block with dizziness and weakness; even the most moderate exercise, the least excitement, or eating a hearty meal would produce a pulse rate varying from 26 to 38 and at these times he often had what he considered dizzy or blind spells that were as a rule only momentary in duration. He always got relief by absolute rest in bed. A few weeks ago he had a rather severe attack of influenza, with the temperature going as high as 102, and since then he informs me that the pulse rate has been in the neighborhood of 70 to 80 and he is not aware of any periods of slow pulse, nor does he experience the dizziness and weakness previously noted. Whether the heart block still persists I do not know, but his present condition justifies us in expecting him to live comfortably for some time. A third case has had symptoms of heart block for about two years and at present feels about as well as he did a year ago. He has spells of dizziness on rising in the morning at times with the pulse going as low as 28. In both of these cases fluoroscopic examination of the heart showed the rhythms of the auricle and ventricle to be independent of each other. They are taking the ordinary precautions of the cardiac patient and experience no distressing symptoms. In general, the cases which have an acute inflammation or hemorrhage into the bundle, or syphilis, give the best prospects of complete recovery. Those suffering with sclerosis, fibrosis and calcification, partially or completely destroying the bundle, usually die in a syncopal attack soon after their onset.

TREATMENT.

The treatment is mainly symptomatic. In my experience the condition of the gastrointestinal tract has a great influence on the

frequency and severity of the "Adams-Stokes Syndrome." Curiously enough the three cases that I have referred to in my own experience all consider their distress of gastro-intestinal origin and had been treated for this condition. Great care must be taken in keeping the bowels well evacuated and the patient should be cautioned against over-eating. In addition to this the habits of exercise should be carefully supervised, rest is exceedingly important at the onset of the trouble. When the ventricular rhythm is once established, then more freedom may be allowed. If syncopal attacks are occurring then extreme care as to exercise, emotional excitement, etc., should be taken. Anything that is apt to demand a sudden change in pulse rate should be avoided. Medicinal treatment proves of little value. Digitalis is contraindicated but in cases showing cardiac inefficiency, as well as dis-association of rhythm, small doses may be given without danger. In one of my cases strychnin seemed to be of some benefit. Hydrotherapeutic measures, carefully administered are of great value in circulatory disturbance. The two cases in which I had an opportunity to use this means experienced decided improvement in their general health and the cardiac symptoms became less aggravating. Often a decided relief would be experienced by the use of short hot applications over the liver with cold towel friction. Where the ventricular rhythm is fairly well established, then the Nauheim bath or electric Sinusoidal bath are of value.

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BIOLOGIC ADAPTATIONS, ESPECIALLY AS TO FRACTURES.*

A. S. KITCHEN, M.D.
 ESCANABA, MICH.

Crile uses this term in a recent paper¹ in explaining the occurrence of post-operative gas pains, and it occurred to me at once that it would be a good title for a paper.

On a recent review, however, it appeared to me that my paper seemed quite reactionary and it may appear to you that I am advocating a new sort of Christian Science. This is the very opposite from my aim.

If the honest intelligent physieian had long since kicked the placebo out of his back door

and had taken the patient into his confidence and explained to him that we are merely the hand-maids of nature, that we are merely individuals who have made a special study of the physiological and pathological processes of life and that we are therefore much better qualified to diagnose and assist nature to combat, oftentimes with force and without delay, the pathological process, we would not today be hearing our very legislators earnestly testifying to the efficacy of those doctrines born of superstition and ignorance. After all we must remember that we are very insignificant factors in the reparative and recuperative processes of life.

During the long development of the race nature has evolved biologic adaptations for every disease and every injury. Indeed this fact is the very foundation of the whole system of serum and vaccine therapy. For every disease and every infection nature has worked out its antigen, the liberation of which destroys the invading organism. Hence the natural recovery of victims of pneumonia, diphtheria, scarlet fever, measles, smallpox and, in fact all infections, although not so rapidly to some as to others, as exemplified by syphilis, carcinoma and other malignant diseases. These latter diseases are no doubt of later biologic history than the former and nature has not as yet become able to liberate the antigen in a large percentage of cases and hence natural recovery is not so well exemplified.

In such a disease as syphilis we have recently come into the possession of a chemical agent which does not itself destroy the invading organism but in some remarkable way liberates the antigen which accomplishes the destruction of the spirochaete, and there is no doubt that we will come into the possession of a similar agent which will act in a similar way on carcinoma and sarcoma. In fact, assuming carcinoma to be an infection, the remarkable influence of mesothorium and radium which probably act by liberating an antigen is indicative that we are on the threshold of a great and glorious victory over this last and most vicious of the enemies to the race. We seem already to possess an evolved immunity to carcinoma up to a certain age and to sarcoma until single or repeated traumata have inhibited or destroyed that immunity. Recently Tyzzer and Ordway have discovered that the Japanese waltzing mouse which is readily inoculable to cancer can be made immune by cross-breeding with other mice. This is the most hopeful and beautiful example of a short-cut to a biologic adaptation in the case of cancer demonstrated at any time up to the present and has given enormous impetus to the investigation of this subject.

This same principle of biologic adaptation

* President's Address, Delta County Medical Society, Jan. 20, 1914.
 A. M. A. Jour. Oct. 25th, 1913.

is ever at our elbow to help us in traumata. In severe contusion or puncture of the abdomen or after severe trauma of the uterus in operative obstetrics, what is the immediate result? Tympanites our horrible enemy tympanites. No, not exactly, perhaps a friend. The rapid evolution of gas in the alimentary tract is the first effort on the part of nature to limit infection by splinting the visceral to the parietal peritoneum, limiting motion and the mechanical spread of infection. It also maintains the caliber of the alimentary tract, while the peritoneum and omentum carrying hords of leucocytes, the forebears of the antigens seem to instinctively wall off the invading organism, throwing out adhesions which later become fibrous and contract. If nature wins the battle and the enemy is routed what is the result? We still have a patent alimentary tract. Under the circumstances it seems at least questionable whether the removal of all gas from the alimentary tract is a rational treatment. Why does the stomach within half an hour after lavage distend again?

Some years ago and before the introduction of proctoclysis, in one of these cases (peritonitis) I made a special endeavor to at least keep the colon free from gas. As a result I found, on post mortem, that the whole colon had contracted to a mere string fitting the caliber of the tube used. In the event of his recovery he would have had to have a new colon built in.

Now then in simple fractures, when one considers the marvelous and intricate activities of the osteoblasts and the osteoclasts, building up and tearing down and building up again the minute trabeculae of bone until they finally maintain the same pressure lines as in the original bone, one cannot without considerable trepidation deliberately lay open and insert foreign plates and grafts. We must expect the reparative elements to be enormously disorganized or inhibited at least.

Where perfect technic and little trauma have minimized the interference, nature may rally her forces and accomplish repair in spite of the foreign splints and in the case of the graft the osteoclasts eventually actually destroy it.

Therefore in simple fractures with mere solution of continuity all that is necessary is a reasonable alignment of fragments, reasonable immobility, reasonable freedom of circulation and above all, actual contact of the bone fragments.

Murphy states that non-union is enormously more frequent today than in his early years of practice and attributes this to a too perfect and too tight immobilization in plaster. When one considers the enormous reduction in the percentage of fractures, through the great number of safety devices adopted by manufac-

turers and especially by railroads, you may well imagine the import of that statement. To my mind the X-ray is responsible for the open treatment. The staggering revelations of the X-ray plate has prompted a more scientific treatment and we have lost sight of the wonderful provision for repair evolved in the course of the development of the race.

Of course, in fractures where alignment and contact is impossible, then we must use our intelligence and operate, being careful to use the most absolutely perfect technic.

In compound fractures, no lesser authorities than Lane, Martin, and Murphy, discountenance any interference whatever accept surface sterilization. In fact, in the recent congress Murphy exhibited a most disreputable looking leg of which he was particularly proud. This was a compound comminuted fracture which he had merely surface sterilized and lightly immobilized in aseptic dressings. Nature had done the rest and healed his leg. This leg would have certainly been in a nearby crematory had he attempted plating or grafting in a known infected field. As it was then, he was in a position to operate and restore its function.

In fractures about joints, reductions should be within a very close range of perfection, as points of leverage and joint surfaces should be absolutely restored in order to obtain good functional results. I may state that at the recent congress in Chicago, I heard Murphy make a very revolutionary statement that we are using too much and too early passive motion on fractures about joints, thus producing an excess of fibrous tissue about the joint, resulting in a greater subsequent limitation of motion. From my past experience, I cannot see that I am going to be influenced to become a convert to this doctrine, but it shows well the present day reversion to conservatism, I might say scientific conservatism based upon a more profound knowledge of anatomy, physiology, pathology, medicine and surgery.

Under the circumstances, where nature is such a true ally, it behooves us well to hesitate before the indiscriminate use of stock vaccines and the blindfold wield of the scalpel.

TYPHOID PROPHYLAXIS.*

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There is no need to tell this audience of the efficacy of typhoid prophylaxis, or, of the wonderful advance in sanitary perfectness by its use. Its value in the Texas maneuvers of three years ago is still fresh in our memories, but a brief history of its discovery and introduction into general use may be of interest.

* Read at Medical Officers School, Lansing, Jan. 12, 1914.

It is significant to note that during the Civil War there were 80,000 cases of typhoid fever in the Northern Army alone. The Franco-Prussian War contributed 73,396 cases, and resulted in 8,789 deaths among the Germans. Sixty per cent. of the entire mortality was due to typhoid fever. During the Boer War there were 31,000 cases with 5,877 deaths. Our Spanish-American War developed 20,730 cases with 1,580 deaths among an army of 120,000 men.

Since the introduction of vaccination in the army there have been 135 cases of typhoid fever among 75,000 officers and men, and only one of these was a soldier who had been vaccinated. He received the first dose in New York and left the next day for San Francisco. The second dose was given ten days later at sea. On the 19th day after the first dose he was taken to the hospital with typhoid. Infection probably took place between the first and second dose while he was crossing the continent. The course of his disease was mild.

With this terrible scourge in mind, not only devastating homes, but rendering fighting forces inefficient, scientists in various countries were at work. To Sir Almroth E. Wright and Leishman of England, Pfeiffer and Kolle of Germany, Castellani of Italy and Vaughn and Russel of the United States Medical Corps is due the credit for convincing experiments which have made this vaccination obligatory for efficient service.

In 1897, Professor Wright of London, published a report of the first twenty anti-typhoid inoculations on human beings. In 1898, 4,000 men of the British Indian army were vaccinated. During 1898 and 1902, 400,000 doses were given to English troops engaged in the Boer war. In all 12,000 men were immunized.

Nineteen hundred eight marked the beginning of the work in our army. An educational campaign was started and many officers and men volunteered for the vaccination. With the improved technique, Major F. F. Russell made the year's work so successful that during 1909 and 1910 about 18,000 men were vaccinated. Upon the mobilization of the troops on the Texas border in 1911, the Secretary of War ordered the compulsory vaccination of all the troops in the field—the first time in the history of anti-typhoid vaccination that it had been made compulsory; the first test on a large scale of this method of individual protection against the disease which had been the terror of army camps.

In an article entitled "The Sanitary Record of the Maneuver Division," Col. J. R. Kean in charge of the Sanitary and Statistical Di-

vision of the Surgeon General's office, states as follows:

"The immense advance in camp sanitation, and particularly the value of this protective measure, can be estimated by comparing the typhoid incidence of this camp with that of the second Division, 7th Army Corps, which was organized at Jacksonville, Florida, about June 1, 1898, and remained there in camp until October, some of the regiments leaving in September. This division was not conspicuously unfortunate in its typhoid record for that time, and is selected because of the close similarity of its conditions of service to those of the Maneuver Division. The two divisions were encamped in nearly the same latitude and for about the same time; each had a good camp site and an artesian water supply of unimpeachable purity. While the period in camp of the 2nd Division, 7th Army Corps, was later in the year, the number of men involved is larger for the Maneuver Division.

The following table shows the typhoid incidence in the two camps:

Mortality and morbidity from typhoid fever in the 2nd Division, 7th Army Corps, at Jacksonville, Florida (June, October, 1898):

Mean strength	10,759
Cases of typhoid, certain and probable	2,693
Deaths from typhoid	258
Deaths from all diseases ...	281

Compare these figures with those for the Maneuver Division San Antonio, Texas, March 10 to July 11, 1911:

Mean strength	12,801
Cases of typhoid, certain and probable	1
Deaths from typhoid	0
Deaths from all diseases	11

"This is the more remarkable when it is stated that the average typhoid rate at the army posts in the United States during the same period was 34 per 1,000; in other words, the health of these soldiers in camp, sometimes living in deep mud and at others in clouds of dust and under a semi-tropical sun, was better than in barracks surrounded by the comforts and sanitary appliances of post life.

"There is no doubt but that the hygiene and health of the men received almost ideal care, the difficulty was, however, that the men were not confined to camp, but had liberty and opportunity to visit the neighboring cities of San Antonio and Galveston. Thousands spent more or less time in these cities, where they dined and lunched, and drank and slept; in fact, became for the time being, a part of the community.

"In Galveston, especially, where a ten minutes' ride carried one from the camp to the

heart of the city, the number of men visiting town was large. The soldier always has a good appetite, and he drank and ate everywhere—in good restaurants and bad, in the numerous lunch wagons, and at street corner stands. Fruits and pies and sweets in enormous quantities were purchased from hucksters lined up along the camp boundaries; they even invaded the company streets, carrying their various sorts of indigestible and infectious products from tent to tent. The best kind of camp sanitation could not keep down typhoid in the presence of all these possible chances of infection, if typhoid existed to any extent among the local population.

"During the period of four months there were reported to the health office 49 cases of typhoid, with 19 deaths, among the civil population of the city of San Antonio, and in Galveston 192 cases were recorded during the same period."

These two cities can therefore serve as controls and indicate what might have happened to our troops in the absence of vaccination.

"Aside from the sources of infection in the adjoining cities, we must believe that the men were also exposed to the influence of an unknown number of chronic bacillus-carriers among our own men. There is every reason to believe that among 18,000 men there were one or more carriers in each regiment, yet they spread no disease, and one of the most important conclusions to be drawn from our recent experience is that in vaccination we have the only effective protection against the elusive carrier."

Complete confidence in vaccination was established by this epoch-making achievement, and, upon the recommendation of the Surgeon-General, the Secretary of War ordered, on September 30, 1911, the compulsory vaccination of every person in the army under 45 years of age, and of all recruits. This was carried out as promptly as possible, and, as the result, the United States has today an immunized army—not a single case of typhoid having been reported among the troops in this country during 1913. This record, compared with that of any year previous to the beginning of vaccination, seems little short of miraculous.

At the Jamestown meeting of the Association of Military Surgeons, Col. W. B. Leishman of the Medical Corps of the British Army reported on the typhoid vaccination during the Boer War. The work was at that time under the direction of Sir A. E. Wright of London and Col. Leishman. Much ingenuity was used in the work which was at that time voluntary. It was arranged that of three regiments, one protected against the disease by inoculation, one in which about half the men were given the prophylactic, and another not protected

serve in the same brigade. The typhoid statistics from this organization showed a very small percentage of fever cases in the regiment where all had been protected, many more in the regiment partially protected, the largest number among those who had not been vaccinated, and the unprotected regiment was disabled for several months with a severe typhoid epidemic, among which was a large percentage of fatalities.

Up to that time the vaccine was given at a single dose, which produced quite a brisk reaction. The difference of manufacture of the vaccine, too, is important in that living germs were injected.

Over thirty years ago, Eberth discovered the cause of typhoid fever, a bacillus, which when present in the body changed the blood and built up within it a certain protective substance which is present in the blood long after the patient has been cured of typhoid fever.

Protective substances which are developed in the human organism after anti-typhoid inoculation are identical with those developed in the course of an attack of typhoid fever. This observation first proven on animals showed that animals can be rendered resistant to the fever by the same process of inoculation as that which we now use in the human being.

The immunity induced by anti-typhoid vaccination is a bactericidal immunity, due to an increased power of the individual to kill the typhoid bacteria by its body fluids, which increased power is again due to an increase in the specific anti-body or immune body in the blood. The body also after vaccination acquires a habit of producing these protective substances on a stimulus of much slighter nature than before the inoculation.

MODE OF ADMINISTRATION.

The vaccine used is prepared by taking some of the typhoid fever bacilli from a patient who has the disease and in growing it in the laboratory in enormous quantities, and diluting it so that each $7\frac{1}{2}$ drops contains 500,000,000 bacteria. These are killed by heating to 60 degrees Centigrade. All vaccine is first tested on white mice and rabbits and carefully examined for the exclusion of any other germ before it is used on a human being. This method of administration may not be familiar to all of you.

The first dose is $7\frac{1}{2}$ drops, the second and third are 15 drops; an interval of ten days being allowed between doses, the entire course thus requiring twenty days. An interval of ten days between doses has been adopted because experience shows that the production of large quantities of specific antibodies does not become evident until about eight to ten days after administration. The second dose is

therefore not given until the first has become effective, since there may be a temporary fall in the quantity of protective bodies present in the serum after the administration of the second and third doses. It is not believed that there is any increased susceptibility to typhoid fever following the first dose. On the contrary it is thought that increased resistance begins immediately, although the degree of immunity produced is not very high until after the lapse of ten days.

If it is not convenient to give the second dose at the regular time it may be hastened a day or two or be postponed up to the fourteenth day, but good results cannot be counted upon after a longer period of time. The site of the inoculation is the arm at the insertion of the deltoid muscle in the upper arm. The dose is to be given under the skin, not into the muscles. The arm is cleansed as for any other operation. The use of tincture of iodine diluted with alcohol has proved satisfactory as a skin disinfectant. The dry skin is painted with iodine before and after the hypodermic injection.

No person should be immunized who is not perfectly healthy and free from fever at the time. In case of doubt it is advisable to take the temperature and to examine the urine. If the man has fever or any other signs of illness, the prophylaxis should be postponed until he recovers. This precaution is necessary to avoid its administration to men who may be coming down with typhoid or other fevers. No alcoholic beverage in any form should be used on the day of treatment.

The vaccine is borne well by children and by women; use doses proportionate to the body weight. The most suitable time for the administration of the prophylactic is about 4 o'clock in the afternoon, as the greater part of the reaction is then over before morning. There is usually some headache and indisposition and a local reaction consisting of a red and tender area about the size of the palm of the hand and sometimes tenderness in the axillary glands under the arm. The entire reaction is over in forty-eight hours. It is best not to require any duty for that period and not to permit active exercise such as long rides or walks.

Some individuals may be very susceptible and develop a marked general reaction (headache, backache, nausea, vomiting, etc.) and some loss of body weight. The number of such reactions is exceedingly small, and, regardless of their severity, they all as a rule disappear completely inside of forty-eight hours. The Widal reaction is always positive after typhoid prophylaxis, it appears in about ten days after the first dose and remains positive for six months to a year.

At the present time boards of health, school trustees, contractors having gangs of laborers on railroads or public utility projects, mining camp operators, are considering the inoculation of their men to get the lowest sick report, which spells the highest efficiency for them. This fall a serious outbreak of fever in New York City has raised the question of school vaccination.

The Health Commissioner of New York is a strong advocate of vaccination as a preventive of typhoid fever, but he doubts if compulsory vaccination of all school children is feasible now. Remembering the opposition to smallpox vaccination, all of which has not yet disappeared, he said he believed the protest against a law requiring school children to be vaccinated for typhoid as well as for smallpox would be great.

Dr. Mark L. Fleming, the acting superintendent of Bellevue Hospital, where the present outbreak is, believes compulsory vaccination for typhoid fever will ultimately bring about the elimination of the disease.

He is very much in favor of immunization:

"We require all nurses and doctors to be vaccinated before they enter upon their duties. We do it for their protection, and the system has worked out well. If all school children were vaccinated, the elimination of the disease ultimately would follow, as it has in the case of smallpox."

Typhoid is an unknown disease at Governor's Island, and this health commissioner believes it is due to the constant requirement of typhoid vaccination among all new arrivals.

The first typhoid vaccination for the National Guard of Michigan owes its inception to a line officer—Major Earl R. Stewart, who issued the necessary orders for voluntary submission to the treatment to members of the Grand Rapids Battalion. The difficulties of getting a command inoculated at their home station was conclusively shown. In many instances parent's consent was necessary, and the fact that the second and third doses could not be given all on the company drill night, made it necessary for the guardsmen to give up another evening. Many took one or two inoculations and forgot the third. However, the educational effect on the entire command was of value, and about fifty per cent have been vaccinated. Members of the Detroit, Kalamazoo and Flint organizations have also had the treatment.

Early in the Copper Country service, the commanding officer issued an order to the effect that every member of the command should be vaccinated, and it is interesting to note that although typhoid fever was present in many of the locations where troops were quartered, no case of fever has developed from that service.

TRANSACTIONS

OF THE

Clinical Society of the University of Michigan

Stated Meeting, January 3, 1914

The President, R. BISHOP CANFIELD, M.D., in the Chair

Reported by REUBEN PETERSON, M.D., Secretary

Reading of Papers

SUBPERICHONDRIAL HEMILARYNGECTOMY IN SQUAMOUS CELL CARCINOMA OF THE LARYNX.

R BISHOP CANFIELD M.D.

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The extralaryngeal operation for the removal of laryngeal cancer, whatever the technic used has always resulted in the complete loss of the function of the larynx. The operation includes the removal of the larynx either partially or totally, turning the proximal end of the trachea forwards and suturing it to the skin, closing the communication between the pharynx and operative field and finally closing the neck wound either at the time of operation or later. This means that, for the rest of the patient's life, breathing must be accomplished through the neck, while the best voice that can be secured is an explosive whisper brought about by the sudden forcing outwards of the air contained in the mouth.

The purpose of this brief preliminary report is to suggest a method by which, it is hoped, in a certain number of selected cases of intrinsic laryngeal cancer, not only a satisfactory voice may be preserved, but also that breathing may be accomplished through the mouth. I have given to this method the name of subperichondrial laryngectomy. In brief, the technic includes a preliminary tracheotomy, incision of the perichondrium covering the thyroid cartilage and the subperichondrial enucleation of the thyroid cartilage together with the cancer.

This procedure leaves the space previously occupied by the larynx lined by perichondrium. After a partial laryngectomy the surface above

and beneath this space will be covered by mucous membrane from the contiguous surfaces, while after a complete laryngectomy it will be necessary to cover this area with skin or mucous membrane grafts. The object to be secured is the patency of the tract from the buccal cavity to the upper end of the trachea. I am sure that this can be secured after a partial laryngectomy and am optimistic about it being possible after a complete laryngectomy, although in the latter case it may be necessary for the patient to wear a special intubation tube. The advantage claimed for the preservation of the perichondrium is that it assists in maintaining the patency of the tube and affords a surface over which epidermatization takes place readily.

CASE 1. Mr. H. R. M. age 69. The patient presents himself on account of a hoarseness which has been slowly increasing for about a year and a half.

Examination: The right vocal cord from the anterior commissure to the vocal process and the right false cord throughout a corresponding area is involved in a neoplastic process. The mass is rough on the surface and shows loss of epithelium over the anterior half. The posterior half is apparently covered by mucous membrane. The mass is pale, irregular in outline, covered with mucus and apparently infiltrates the neighboring tissues. Both arytenoids show moderate edema around their bases. Although the mass extends quite to the anterior commissure, the left half of the larynx shows no involvement when seen from above.

Operation, Dec. 27, 1913: Suspension laryngoscopy and removal of a specimen: at the time of the removal of the specimen, the base of the mass was found to be hard, rough and difficult to remove. A specimen was removed from the tumor, one from each arytenoid area and one from the left false cord.

Pathologic report: Specimen from the

tumor shows squamous cell carcinoma; other specimens negative.

General Examination: Chest negative except for moderate emphysema. Urine: Heavy reaction for reducing substance, moderate acetone.

In view of the fact that involvement of the left half of the larynx could not be demonstrated, a hemilaryngectomy was decided upon. Following a three day VanNoorden diet the patient became sugar free.

Operation, Jan. 1, 1914: Operation under novocain one per cent. anesthesia. (1% in 1-10,000 adrenalin). Median incision from hyoid bone to sternum, resection of the thyroid isthmus and preparation for low tracheotomy. Incision of the perichondrium over the anterior edge of the right thyroid cartilage. Separation of the perichondrium from the right thyroid cartilage. Tracheotomy. Incision of the cricothyroid membrane. Attempt to split the thyroid cartilage found impossible with scissors on account of the calcification of the cartilage. Thyroid cartilage finally split with Asche forceps. Separation of the two halves of the thyroid cartilage showed the tumor to be about the size of the first phalanx of the little finger. The left half of the larynx was seen to be apparently healthy. The cricothyroid and thyrohyoid membranes were then incised along the lower and upper edges of the thyroid cartilage. The greater wing of the thyroid cartilage was severed and the thyroid cartilage; the mucous membrane of the right half of the larynx and the tumor were removed in one piece. Two or three vessels were then ligated and the larynx packed with gauze. Two sutures were then passed through the perichondrium of the two sides but were not tied. Three sutures were used to unite skin edges. The operation was painless and without hemorrhage.

Post Operative Course, Jan. 11, 1914: For four days the patient enjoyed a satisfactory convalescence. Locally the condition was perfect. The wound did not become infected and but little mucus collected in it. With the edges of the incision held in coaptation a surprisingly good voice was secured. On the morning of the fifth day slight evidence of a pneumonic process was discovered over both bases behind. This process advanced with the tremendous rapidity sometimes seen in the terminal pneumonia of the aged and terminated in a few hours.

Autopsy: Moderate involvement of both lungs, fatty heart. Neck and bronchi negative.

DISCUSSION.

DR. C. B. DE NANCREDE: It has been extremely interesting to me, to hear this paper, because Dr. Canfield had the same experience in dealing with

the thyroid cartilage that I had some thirty or more years ago, while operating for an intralaryngeal growth. The forceps would not divide the structure properly and I think I had to employ a Hey's saw. I think he is to be congratulated on having got so good a result, by infiltration analgesia, and I am very sorry my prognosis expressed the other day has been somewhat verified, I mean the chances of failure in diabetic cases.

NERVOUS CHILDREN.

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The title "Nervous Children" was chosen because we are not altogether justified in speaking of neurasthenia and hysteria as fully developed entities in the early years of life, as we observe them in the adult. The child presents only certain phases of these definite forms of disorders as they occur in the adult. This is self-evident from the fact that in the tender years of life we are dealing with an undeveloped psychic sphere. While certain characteristic symptoms of these disorders occur quite early in life we can not expect to find in a developing organism the symptom complex which characterizes certain definite forms of nervous disease in a fully developed psychic individuality.

The organic diseases of the brain and the spinal cord and the psychoses of childhood, also the hereditary psychopathic states, and the various forms of mental deficiency cannot be classed under the head of nervousness. As is well known, there are certain anatomic peculiarities of the nervous system of the child which necessarily give rise to physiologic and psychologic characteristics. The child's brain presents an undeveloped fiber system; many of the ganglion cells of the newborn are not of the fully developed type and show some of the embryonal character. Retrogressive changes in the nervous elements of the fully developed brain present clinical features which are not unlike the psyche of the child. In consequence we may accept, in part at least, the fiber and cell development as the basis of the child's psychic development.

While one is able to establish certain more or less definite stages in the psychic development of the child, there are great individual variations which come within the normal limits. In the beginning, the manifestations which constitute life in the newborn are wholly expressions of the subcortical function. In other words, all activities are accomplished without conscious impressions and are, therefore, reflex in character. Gradually from the simplest reflex manifestations the activities become more complicated and finally invade the cortical, motor and sensory spheres. When

the child begins to differentiate between objects held before it and with its own arm reaches out and grasps the chosen one, we are certain that the motor cortex is active and that there are conscious impressions. It appears that a certain equilibrium is established first before any marked consciousness enters into these actions. So it is with the speech, at first a mechanical jargon, which gradually becomes intelligible speech in which the higher cortical centers play a part. The child learns to walk at the age of one or one and one-half years without the aid of a fully developed active consciousness.

In the development of affectivity, at first most primitive, is the differentiation between likes and dislikes but as the intellectual development progresses this differentiation becomes more and more apparent through the various emotional manifestations (joy, grief, sexual emotion). The associations, that is, the power to think, are extremely simple and few. They are simple analogues, that is, the child will call every woman mamma and every man papa. It is very evident that only the most primitive analogous conclusions are possible. As the vocabulary is more enriched (according to Ziehen at one and a half years about forty words, at the end of the second year over two hundred to three hundred words), the ability for more extensive associations is increased. In the normal child the separate psychic qualities are, as a rule, comparatively uniform in their development. There exists a certain harmony in the psychic development of the normal child. However, there may be pauses in the mental development which, to be sure, are of short duration, one or more weeks, very rarely months. During these periods stimulations bring no reactions and urging is of no avail, the progress in mental development returns spontaneously. It is, therefore, not necessary to urge the normal child in its mental exercises and in the psychopathic child such urging is decidedly harmful. Careful observations will reveal that the child possesses a marked imitative impulse, an important factor in the rearing of children and in the development of pathologic tendencies. It is responsible for much that is frequently attributed to heredity. In fact, hereditary influence counts for little when we determine by careful analysis the origin of the elements that form an individuality with the normal child or the anomalies in the abnormal.

The apparent independent judgment of the child in most cases is but a representation of a figurative association complex which is quite evident in the first years of school instruction where there is a tendency to make a strong impression upon the child's mind of definite formulated rules and fixed conclusions. The

child is therefore unable to give reasons for these conclusions, the result of independent thought. Of course the effort is also made to stimulate the child to draw its own conclusions and to formulate independent judgment. This is with some children successful within a limited field, but never in general. The child who makes wonderful progress in a special field, as in mathematics or languages and fails in less complicated branches is not infrequently of a psychopathic disposition and the unusual attainment, a psychopathic symptom; this is of importance in connection with the development of certain anomalies.

The child does not appreciate the significance of its own existence, its personality, its relation to the outside world. This is evident from the fact that the child speaks of itself in the third person until the third year. Even then recognition of personality is manifest in a very primitive manner in that the child no longer speaks of itself in the third person, that is, instead of saying "William wishes to have" it says for the first time "I wish to have." We are, therefore, unable to recognize personality in the child before the end of the third or fourth year, much less anomalies of personality before this period. It stands to reason, therefore, that a nervous disorder of personality cannot appear before this time. In a general way the impressions through the sense organs are after this time more fully appreciated and the correct interpretation of the more simple ones is evident of a wider association becoming more and more complicated as time goes on, until the highest psychic function is attained, when we may speak of the child's intelligence.

In the earlier months of life the child is less susceptible to stimulation. Not only is this true in the motor sphere but frequently stimulation of the sensory nerves is not perceptible to the newborn. There are a number of neurologic conditions peculiar to childhood. The tendon reflexes are more active than in the normal adult from the second month to the second year. The umbilical reflex which is frequently absent during the first weeks is later very marked. Not infrequently we can obtain the Babinski toe reflex in the second half of the first year. The conjunctival reflex is present at the time of birth. On the other hand, the blinking of the eyes is often not present until the sixth or eighth week. The pupillary light reflex is present from the time of birth, while the pupils do not react in accommodation until about the fourth week. The photophobia, present at birth, usually disappears within ten to twenty days. Fixing of objects within the line of vision occurs in the fourth or fifth week, but following the objects with the eyes is not observed until the

third or fourth month. The newborn is deaf and the function of hearing is gradually established until at the end of the third month there is fairly good hearing.

There are certain peculiarities of childhood under normal conditions which are of interest in the study of abnormal states. In the fifth, sixth, seventh and eighth year the child develops an extraordinary interest in its surroundings and asks numerous questions. This is not an expression of a series of association complexes but is more or less mechanical, so that a number of questions pertaining to objects closely related to each other follow in succession in a rhythmic manner. In the emotional sphere there is little control in early childhood and a more or less marked impulsiveness is always apparent. Ideas presenting themselves are executed without consideration or control. Very early the child is able to distinguish and appreciate the difference between agreeable and disagreeable situations and unsightly objects when this requires no great amount of intelligence. Herein lies the secret of discipline as it is ordinarily applied to children. The child does not consider its act from an ethical standpoint, but associates the act with the situation that follows, be it praise or punishment, and here again comes into play the strong imitative impulse of childhood. The disposition of the parent and the situation created by the parent in the discipline of children are largely responsible for the disposition of the child. The proper punishment applied at the proper time will develop a substantial control in all of the child's acts, while praise has a tendency to increase the natural impulsiveness. Many of the anomalies of disposition and symptoms of nervousness are the result of mistakes in discipline in early childhood. It is of interest to note the well marked imaginative power of the child. It not infrequently mingles the imaginary with the real, which is evident in the susceptibility to fairy tales and phantastic portrayal. The memory of the child is in some respects peculiar. While the child generally has a quick conception, there is a tendency to forget on account of the lack of proper association. Nevertheless the psychic impressions of childhood are permanent, although apparently unconscious, and are therefore not memory in the ordinary sense. Most of the associations that can be reproduced under certain definite stimuli are those of childhood impressions. Observations and experiences have a permanent place in the unconscious mind, and if of a painful character they again may be reproduced in a distorted form as nervous symptoms.

ETIOLOGY.

In the majority of nervous children one is able to demonstrate a certain endogenous pre-

disposition, the so-called psychopathic or neuropathic disposition. But in studying the personality of the father, or the mother and perhaps the several other children of the family, as well as the general environment of the child, the endogenous predisposition does not appear so prominent as a causative factor of nervousness. Many times the neuropathic disposition is an acquired complex of nervous manifestations, the result of environment. However this may be, it is true that the resistance of children to outside influences at the time of birth is just as variable as their external appearance. One child becomes easily nervous, another less so, a third under the most careful regulations is predestined to be a nervous child. Among the avoidable exogenous causes of nervous children are the mistakes of early training, involving the personality and situations created by those having this responsibility, in which the physician is frequently a prominent figure.

Faulty training of children begins immediately after birth. A child in the first days, weeks and months of life requires a great deal of sleep, in the first week at least twenty hours in the twenty-four and for months after sixteen hours. There are many conditions too numerous to mention here that prevent this, even in the best regulated homes, but all of them avoidable. At this time these outward influences are only reflex, since, as already mentioned, there are no psychic impressions at this period of life. Later the usual method of amusing the child is unquestionably harmful. The small child should be lonesome and not subjected to the stimulations arising from the implements we choose to call toys.

The over stimulated child, the unusual child or the wonderful child frequently is a nervous child. It is often pathetic to hear the mother boast that her child can read at three or four years or can produce melodies after hearing them for the first time. Such children are frequently more or less exhausted by the time they reach the school age and are not equal to the demands made upon their neural resources. When the problems of the school curriculum become more difficult, there appear periods of exhaustion, irritability, disturbed sleep, et cetera.

Corporal punishment in childhood is a barbaric method of training. It is no longer permissible in punishing criminals, why should it be tolerated in the training of children? The normal child may survive with an amiable disposition, while that of the nervous child is surely not improved by such treatment.

The desire for freedom is an early manifestation in the child's emotional sphere and any forced restrictions will invariably produce re-

actions of resentment. When it is necessary to apply force there is always an error of training or in the disposition of the parent. It is therefore unnatural and unfavorable for the physiologic development of the child to be surrounded by and compelled to follow severe regulations in the home or in the school. An equilibrium can be established only by carefully observing the reactions of the individual.

Of the greatest importance in this connection are the physical and psychic trauma which not infrequently arise as a result of this form of applied force. The effect of a physical trauma and also of the psychic, to a certain extent, is the same as in the adult, resulting in a pathologic reaction in any psychopathologic individual. The majority of cases of hysteria in adult life have their origin in this period and from this cause.

In grouping nervous conditions of childhood the writer has chosen the plan of Cramer¹, who collects the symptoms under four heads as follows: neurasthenia, endogenous nervousness, complicated endogenous nervousness, and hysteria.

NEURASTHENIA.

In childhood, as in the adult, there is an exhaustion of the cortical nerve centers which occurs in children who are not necessarily of a neuropathic disposition, and is the result of strenuous mental effort without sufficient time for recuperation in rest and sleep, and which results in a chronic exhaustion of the brain centers. This type of disturbance undoubtedly forms the smallest number of nervous children. In two hundred cases of nervousness observed by the writer, there were but nineteen that could be thus classified.

ENDOGENOUS NERVOUSNESS.

This is a nervous exhaustion in a child with a marked neuropathic disposition and follows a moderate mental exertion in one who has the requisite amount of rest and sleep for a normal child. In other words, it has to do with a child with diminished resistance who has not the endurance of the normal child under normal conditions. This class was represented by twenty-eight in two hundred cases, the ages of the patients ranging from six to thirteen.

COMPLICATED ENDOGENOUS NERVOUSNESS.

This form of nervous affection is due to physical ailments in predisposed children. In this class belong the intensely nervous, sensitive, excitable, irritable, restless child ever prone to habit spasms, nocturnal incontinence, et cetera, yet who may show no actual evidence of nerve exhaustion. Among the more com-

mon causes are enlarged tonsils and adenoids, eye defects, diseases of the skin, disorders of digestion, constipation and incipient tuberculosis. In the writer's series there were ninety-three belonging to this class.

HYSTERIA.

Here the child presents a marked neuropathic disposition which is most evident in hypersuggestibility, increased imaginative power and inclination to lability and emotionalism. The physical stigmata are apparently not so numerous in childhood as in the adult. Anesthetic conjunctivae are frequently met with, as well as areas of anesthesia and hyperesthesia. When these are demonstrated they are sharply circumscribed and usually located on the back, thorax and abdomen. Seventy of the two hundred cases recorded were classified as hysteria, the ages of the patients ranging between four and fourteen years. Fifty-eight of these patients were girls.

The physical expression of hysteria in childhood is monosymptomatic, at least one symptom is so apparent in the patient that it overshadows all other manifestations. It is very rare that a more or less complete symptom complex is observed in children before the age of ten. Sensory and motor anomalies are about equally divided, the psychic manifestations being always present. The cases under analysis presented a great variety of psychic anomalies, some of which I will briefly mention: A patient with a perverse paradox mental reaction was repeatedly overcome by fear which was followed by nausea and vomiting whenever she saw a certain shade of red, the result of a previous experience in suddenly coming upon a bleeding animal while out walking. Dislikes for certain odors and tastes ordinarily pleasing to the normal child were observed in several patients with somewhat similar explanations. Fears and timidity resulting from sudden visual and aural stimuli were noted in a number of cases. There was an acute hallucinatory delirium in a child of ten years suffering from hysteria which lasted from one-half to two hours and was the result of a sexual trauma at the age of seven years. A child who repeatedly ran away from home was severely punished by the mother and gradually developed an atasiabasia. In this case the act of running away was based on a feeling of compulsion to do so. Compulsory ideas and phobias of various kinds were elicited from children six and seven years old. Idiosyncrasies which had their origin in superstition, and strong aversion for certain foods based upon an unpleasant personal experience were met with repeatedly. The suggestion of a resemblance between one child and an insane aunt caused the patient to be ob-

1. Handbuch der Nervenkrankheiten im Kindesalter. Berlin. 1912.

sessed with the idea that she would be insane at the age of twenty-five, the exact age of the aunt.

These few examples illustrate the influence of personality, environment and careless suggestion in the development of hysteria in childhood. Out of two hundred cases of hysteria in the adult I was able to collect one hundred and seventy-three cases that had their origin in a psychic trauma occurring between the ages of four and ten years. In ninety per cent. of the cases I was able to show a neuropathic disposition in one or both parents. In two hundred cases of adult neurasthenia between the ages of eighteen and forty-five years, there were but twelve per cent that gave a history of nervousness in childhood. In forty-two per cent. of all cases I was able to trace a neuropathic disposition in one or both parents. In all of the twelve per cent there was a history of nervousness in the parents.

CONCLUSIONS.

The conclusions one may draw from the analysis of the two hundred cases of nervous children are, that neurasthenia, pure and simple, is not frequent in the earlier periods of childhood. It is not as a rule hereditary and neurasthenia of adult life is not a persistence of childhood neurasthenia. The most common causative factor in childhood is mental overwork without the requisite periods of rest owing to the patient's surroundings.

In cases of endogenous uncomplicated nervousness, a marked neuropathic disposition is prevalent and no doubt is the hereditarily weak child which has diminished resistance and is unable to cope with the more strenuous mental life. This form is not observed until the school age is reached and continues in adult life to form the group known as nervous men and women, and possibly may also include the cases grouped under psychasthenia. Complicated endogenous nervousness is observed much earlier in the child, the youngest in the series being one year old. It is the most frequent form of nervousness in childhood and shows the importance of physical disease in the production of nervous disorders.

Hysteria in the adult is a persistence of the disease in childhood in the majority of cases. The disease itself is not hereditary but may to a certain extent be dependent upon a predisposition, either acquired or hereditary.

DISCUSSION.

DR. C. D. CAMP: I have been very much interested in Dr. Klingmann's paper, although I must confess that I am interested in the subject somewhat as an amateur. It is my impression that we should make a careful distinction between nervous diseases in children and "nervousness in childhood." My experience has been that nervous diseases in childhood present about the same problems as do

nervous diseases in adults. We have all of the organic diseases in childhood that we have in adults, or practically all. We have cases of paresis, for instance, which are practically the same as paresis in the adult, and we certainly have cases of hysteria and neurasthenia in childhood which differ very little from those diseases in adults. On the other hand, "nervousness in childhood" has always seemed to me to be due to some condition outside the nervous system. Whenever I see simply a nervous child, an irritable, restless, disobedient child, I consider it certain that there is some cause outside the nervous system; some trouble with the eyes or the teeth, the nose and throat, or some other part of the body.

DR. D. M. COWIE: I am very glad to have listened to Dr. Klingmann's paper. The subject of course, is of very great interest to all physicians, particularly those who are engaged in general practice. My personal opinion about the cause of the numerous manifestations of nervousness in children is that they are due in a great part to environment. Attention has been called to what I believe to be a very pernicious habit, that of amusing children. Children should not be brought up with the idea that they must be amused all the time. It is surprising how little care normal infants and children require in order to keep them happy. If they are kept clean, warm, dry and properly fed, they will amuse themselves with very few playthings. A child should be allowed to grow like a plant. All it needs is a little cultivation. When it reaches the age of six months it will sit up and will insist on doing so if it is a normal baby. When it is a year old it will make efforts at locomotion, all without any help. The child has an equal capacity to amuse itself. The infant should be allowed to develop itself. Leaving a baby or an older child entirely to its own devices on the other hand is equally pernicious in its effects. Extremes must be avoided. It is wrong to let a child lie all day in the same bed. Infants treated in this way frequently make slow development and do not manifest the same intelligence that children do who are taken up occasionally and moved from one part of the house to another, and thus given a change of position as well as of scene.

THE INJECTION OF ALCOHOL INTO THE GASSERIAN GANGLION IN THE TREATMENT OF TRIFACIAL NEURALGIA.

C. D. CAMP, M.D.

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(From the Neurologic Clinic, University Hospital, Ann Arbor, Michigan.)

The most scientific as well as the most satisfactory treatment for trifacial neuralgia is the removal of the cause. In 1909, I published a paper (The Cause and Treatment of the Trifacial Neuralgia¹) in which I dwelt at length on this point. In some cases, in spite of diligent search the cause is undiscovered; these are usually in patients well advanced in years and it is to the treatment of this class of case that I would especially call attention. Electricity may be of some benefit to them, but I have never seen one cured that way. Medical

1. *Physician and Surgeon*, August, 1909.

treatment is not curative unless directed towards the cause—that is, quinine in malarial cases, iron in anemia, et cetera. The injection of alcohol, osmic acid or other substances into the nerve, either deeply or peripherally, is usually a measure affording temporary relief only; the nerve almost always regenerates and the pain returns. The removal of the Gasserian ganglion, surgically, is usually curative but the operation is a very difficult and dangerous one; the best surgeons often hesitate to attempt it and if the patient survives the operation there is great danger of trophic ulcer of the cornea and also danger of cerebral hernia.

It is generally conceded that, in order to prevent recurrence of pain, the ganglion must be destroyed and, in 1909, Harris suggested that this might be done by passing a needle through the foramen ovale and injecting alcohol into the ganglion. In 1912, he published three cases which he had treated this way, though Offerhouse and others had treated the suggestion as quite impossible. Hartel, in Germany, also injected the ganglion but with a somewhat different technic. Taptas, in France, used the same method as Harris.

I became interested at once on seeing the paper by Harris and, after some practice in the anatomical laboratory, injected my first case, April 19, 1912. The patient was fifty-six years old and had had neuralgia for fourteen years. He had been extensively treated and had an operation on the nerve with temporary relief. After the injection it was noted that there was analgesia in the distribution of all three branches of the nerve and he had no attacks. He was discharged from my service in the Hospital six days later and I have heard that his neuralgia is cured but have had no opportunity to re-examine him.

The second patient was a woman, age forty-six, with severe trifacial neuralgia of two years' duration. She was admitted to the Hospital in December, 1912, and on January 6, 1913, had an injection of alcohol into the peripheral nerves at their exit points on the face, with complete relief. On Feb. 17, the patient came back to the Hospital, the pain having returned two days before. The Gasserian ganglion was injected, Harris method, on February 24, 1913. In less than ten minutes after the injection there was complete analgesia of the right side of the face in the distribution of all three branches of the fifth nerve, and the right side of the tongue. The corneal reflex was lost on that side. Sensation to pressure was preserved. On February 27, it was noted that she had a vesicular eruption about the right corner of the mouth resembling herpes zoster. On March 2, she had no pain and the area of analgesia was the same as before. A steel pin

was thrust through the right side of the tongue without causing pain, though the patient said that she felt it going through. The corneal reflex was lost but there was no keratitis. An examination made December 11, 1913, showed the area of analgesia slightly less extensive but otherwise the same as at the previous examinations.

The third patient was a farmer, aged sixty-eight years, with typical and very severe neuralgia in the left side of the face, duration four years. His blood pressure was 200 mm. Hg. but, except for the manifestation of the neuralgia, his neurologic and physic examination was negative. He was given an injection of 1 c.c. of 1 per cent cocaine in 80 per cent alcohol into the Gasserian ganglion, July 24, 1913. Analgesia of the left side of the face was complete inside of a few minutes. After the withdrawal of the needle he said that he felt dizzy and nauseated and there was noticed a weakness in the muscles of expression on the left side of the face and a paralysis of the left external rectus muscle but this paralysis was transient and there was no trace of it the following day. There remained a permanent analgesia of the left half of the face in the distribution of the fifth cranial nerve (Figure 1),



Fig. 1. Shaded area of the face in analgesia to pinpoint. Case III, Jan. 13, 1914.

also analgesia of the left half of the tongue, and of the mouth as far back as the middle of the tonsil. The left cornea was anesthetic and the reflex abolished. It was also noted that the temporal and masseter muscles on the left side did not contract on mastication. Some interesting physiologic studies have been made on this patient relative to the functions

of the Gasserian ganglion. Dr. Canfield reported that the tympanic membrane was anesthetic, the only response to the probe being a ringing tinnitus.

The patient's present condition can be shown you, for he has very kindly returned to the Hospital at my request for re-examination. He has had no pain since the injection and feels very well. The extent of the analgesic area is about the same as on previous examinations and the corneal reflex is still absent. There is no sign of keratitis.

Using aseptic precautions the needle is inserted through the skin opposite the lowest part of the sigmoid notch and pushed upward and

through the foramen spinosum, the cavernous sinus, et cetera, and injury to them would probably have serious consequences but no case has yet been recorded in which there has been a serious accident when using the Harris technic.

I feel safe in saying that the demonstrated possibility of destroying the ganglion by simply injecting alcohol into it, without opening the skull, is a great step forward in the treatment of intractable cases of tic douloureux but it should only be done after every effort to find or remove the cause has failed and the peripheral injections or operations do not give relief.

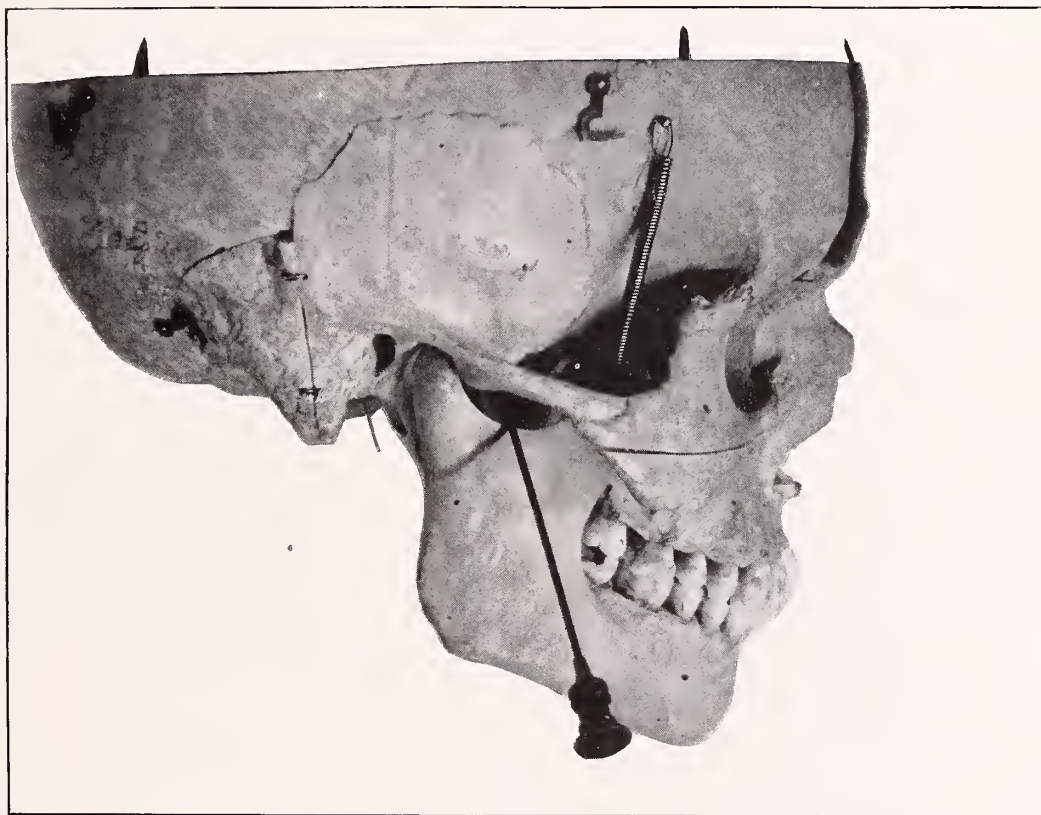


Fig. 2. Lateral view of the skull showing the relation of the needle to the bones of the face and skull.

backward to the foramen ovale; after recognizing this point the needle is pushed not over one centimeter through the foramen and the alcohol injected. (Figure 2.) The position of the needle is shown in the illustration. (Figure 3.) The appearance of the analgesia in the forehead is an indication that the ganglion has been reached for the ophthalmic division of the fifth, of which the supraorbital is a branch, passes directly into the orbit and the alcohol would not influence it unless the needle had passed through the foramen ovale.

The insertion of the needle is not without some danger for important structures are very close; the middle meningeal artery, passing

DISCUSSION

DR. C. G. DE NANCREDÉ: I agree entirely with Dr. Camp concerning the seriousness and difficulty attending the Hartley-Krause operation. I need not dilate further upon the dangers of this method which sometimes necessitates operating in two or three stages because of the free hemorrhage which obscures the field of operation, and is sometimes dangerous to life. The anatomic differences in this particular part of the cranial vault are liable to relatively great variability, and I do not see how in certain cases one can surely avoid injuring large bloodvessels. Sooner or later, those who employ this method will surely meet with such accidents. I think that it is far better before undertaking the injection or excision of the ganglion, to employ more conservative measures such as the injection or

removal of the peripheral branches. I have frequently seen bad cases of trifacial neuralgia given very prompt relief, for relatively long periods, from conservative methods such as these. I do not think Dr. Camp has done justice to the efficiency of these methods. Furthermore, a change in climate will often effect a distinct relief where advanced arteriosclerosis is present avoiding marked changes in atmospheric pressure which causes circulatory changes in the ganglion or its branches. I think that all the conservative and less radical methods

lion. Certainly the cases I have seen of his have been perfect in their results and with no ill effect so far as I could see. I agree with Dr. de Nancrède that it is better to have the peripheral causes removed first, but I should certainly prefer having my ganglion injected to having it removed.

DR. CAMP (closing the discussion): I have been very much interested in Dr. de Nancrède's experiences. As I said at the beginning of my paper, it is certainly more scientific to remove the cause, if it can be found. As a matter of fact, it is remark-

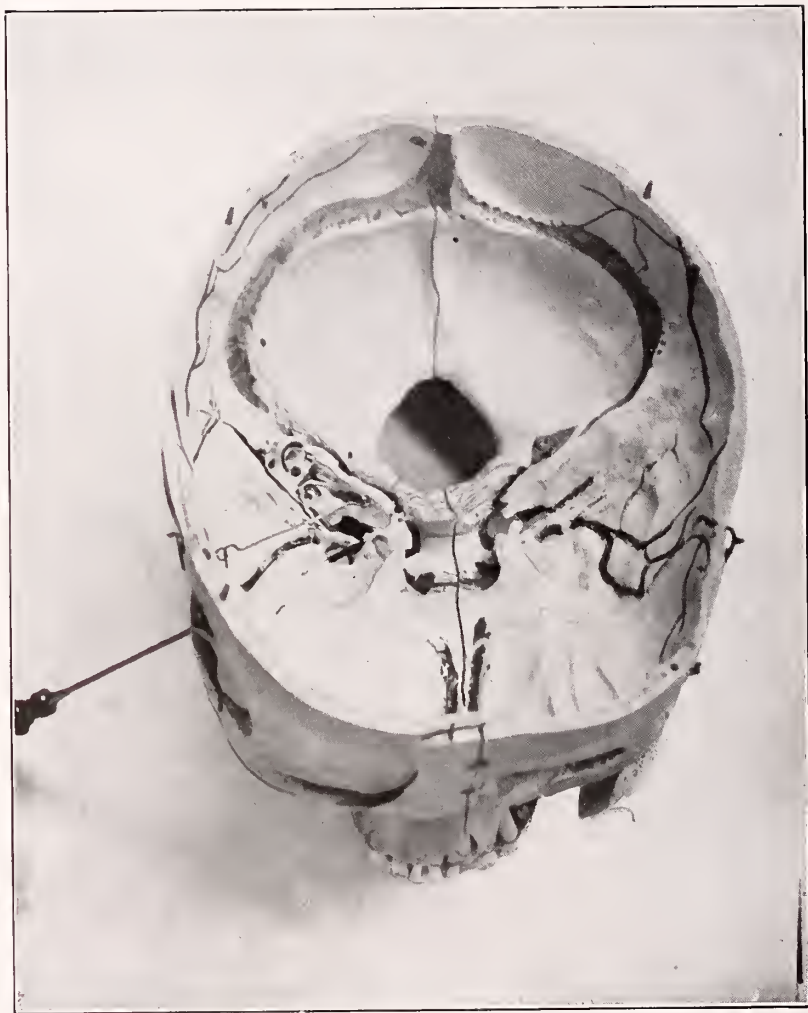


Fig. 3. View of the base of the skull from above.
The needle is in about the position of the Gasserian ganglion.

should be tried before considering either injection or removal of the ganglion.

I do not say Dr. Camp's operation is impossible, for he has succeeded, and I recently referred a private case to him for this operation, but I do say that I am perfectly sure if injection operations be tried often enough, serious accidents will occur.

DR. R. BISHOP CANFIELD: I can vouch for the success of Dr. Camp's injection in the cases I have seen. I would not like to turn over to him my cases of internal pressure, but given a case where there is no question of peripheral irritation, I can see a distinct place for the injection of the gang-

lion. Certainly the cases I have seen of his have been perfect in their results and with no ill effect so far as I could see. I agree with Dr. de Nancrède that it is better to have the peripheral causes removed first, but I should certainly prefer having my ganglion injected to having it removed. I have been very much interested in Dr. de Nancrède's experiences. As I said at the beginning of my paper, it is certainly more scientific to remove the cause, if it can be found. As a matter of fact, it is remarkable how many cases one can cure that way if one is sufficiently patient and diligent. I have had about forty cases of trifacial neuralgia in the past two years and only three have needed this injection. Dr. de Nancrède has had to operate on the Gasserian ganglion and has made a strong showing as to the dangers and difficulties involved in this operation. It is true that one would prefer to do peripheral injections but recurrences are frequent. One of the patients reported this evening had had several peripheral injections and two peripheral operations in which a large part of the superior maxillary had been cut way, and then there was a recurrence.

- (1) A CASE OF OBSTRUCTION OF THE CENTRAL RETINAL VEIN.
- (2) A CASE OF OBSTRUCTION OF THE OPHTHALMIC VEIN.
- (3) A CASE OF HEMORRHAGE AT THE BASE OF THE BRAIN WITH PRESSURE SYMPTOMS RESULTING IN IMPEDED VENOUS FLOW, PARALYSIS OF EXTRINSIC MUSCLES AND PARTIAL DEAFNESS.

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CASE I. A case of obstruction of the central retinal vein, possibly due to proliferation of the intima.

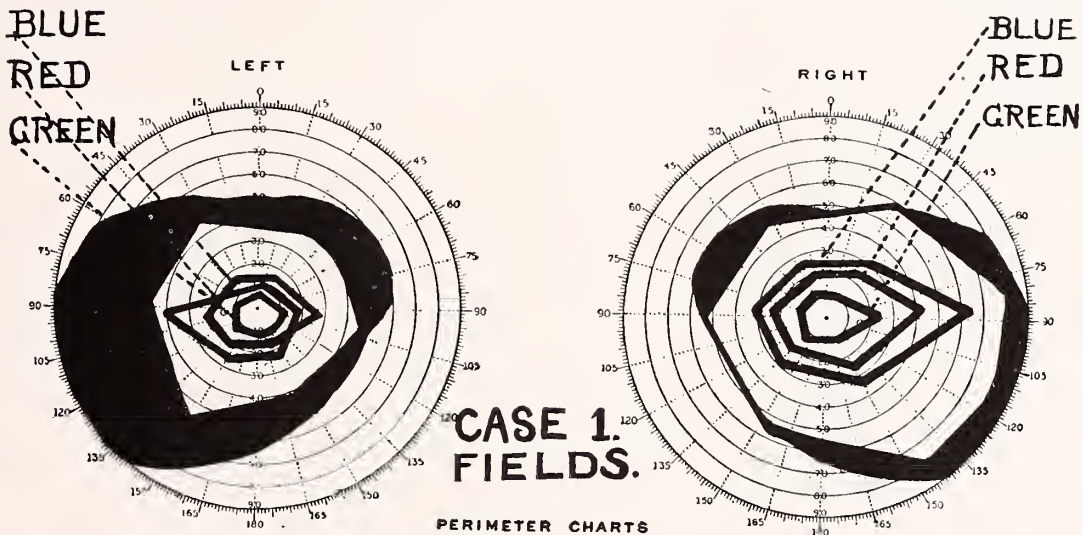
slightly edematous. Fundus otherwise negative.

Left eye. Media clear, disc edematous, blurred and slightly swollen. Veins markedly engorged, irregularly distended, most marked in the superior temporal portion. Retina mottled throughout by diffuse, striated and radiating hemorrhages (nerve fiber layer), the whole retina edematous, in places completely obscuring the veins. Center of the fovea yellowish, hemorrhages darker in color radiate from the center of the fovea.

Fields—Right eye. Very slight contraction for form and color. Left eye. Form field contracted, except nasally, temporal field narrowed to 50°, color field for blue and red concentrically contracted and confused; red slightly less proportionately contracted.

Orientation. Excursion normal, both eyes.

Blood examination—B.P. 110, Hemoglobin 95%, R. B. C. 4,980,000. W.B.C. 6550.



C. P. male, aged 38, American, farmer. Entered the Clinic of Ophthalmic Surgery December 15, 1913, complaining of dimness of vision in the left eye.

History: Four weeks ago the patient first noticed that his vision in the left eye was blurred. This dimness progressed for two weeks, but has remained stationary since that time. Vision is more blurred temporally and objects seen have a reddish color.

Examination—Vision right eye 5/4, left eye 5/20. Lids, conjunctiva and external appearance of eyeball normal. No proptosis as shown by the measurements taken with the exophthalmometer. Tension, right eye, 30 mm. Hg., left eye 23 mm. Pupillary reflexes normal.

Ophthalmoscopic Examination—Right eye. Vessels of the retina show slight arteriovenous compression, beginning corkscrew veins, retina

Lymphocytes, small 32%, large 4%
 Polynuclears, neutral 60%
 Polynuclears, eosin 3%
 Transitional 1%

No other forms seen in count of 250 cells.

X-Ray Report—Plates negative, except for slight shadow just to the left of vertex at termination of middle meningeal artery.

Otolaryngologic report negative. Wasserman report negative. Medical report, palmary emphysema, urine negative, blood pressure normal. Tuberculin reaction negative.

This case presents a negative history, except for loss of vision coming on gradually. Ophthalmoscopic examination revealed a typical picture of obstruction of the central retinal vein.

A thrombosis in the central vein or in its branches causes ophthalmoscopic appearances which were formerly credited to embolism of the central artery or to hemorrhagic retinitis.

The pathologic aspects of venous thrombosis have been admirably investigated by Coats. Clinically when one sees large hemorrhages and enormously swollen and tortuous veins partly buried in retinal edema, obstructions to venous return flow must be considered. When these changes are limited to one eye, and there is no exophthalmos or other evidence of obstruction of the ophthalmic vein, the conclusion seems inevitable that the obstruction must be in the central vein and not farther back.

There may be signs of widespread vascular disease in the form of thickened peripheral vessels and cardiac hypertrophy, or, of nephritis.

Pathologic examination of a large number of cases has shown that the obstruction may be due to a thrombosis, to a proliferation of the intima, or to a combination of these conditions. The loss of vision is more sudden in cases of thrombosis and there are no prodromal symptoms.

According to Parsons the different pathologic changes which have been put forward in explanation of the clinical picture of thrombosis of the central vein are as follows:

1. Thrombosis in the central vein.
2. Occlusion of the central vein by proliferation of the intima, but without thrombosis.
3. Multiple thrombi in the retinal veins, but without a thrombus in the central vein.
4. Multiple emboli or perhaps thrombi in the retinal arteries.
5. Changes in the retinal vessels, (degenerative).
6. Hemorrhage into the substance of the optic nerve.

Several cases are recorded in which on pathologic examination no thrombosis nor other impediments were found in the veins. Usually the thrombus or other obstruction is situated either at the lamina cribrosa, or a short distance behind it, more rarely at the point where the central vein makes its exit from the nerve.

These cases of thrombosis of the central retinal vein are prone to be followed by glaucoma, and as it is for the relief of this complication that enucleation becomes necessary, it is sometimes difficult or impossible to differentiate between the primary and secondary pathologic changes.

Frequency—Thrombosis occurs about once in three thousand ophthalmic cases and most frequently in persons accustomed to much toil, and especially to much stooping. Of the 20 cases reported by Ammann, 13 occurred in farmers who did gardening, and 2 others in smiths. Nearly all of the cases reported occurred between the ages of 40 and 80. Men were more often affected than women. Most of the cases showed marked angiosclerosis.

Diagnosis—The gradual loss of vision, in the case here reported, together with the absence of all symptoms suggesting the source of a

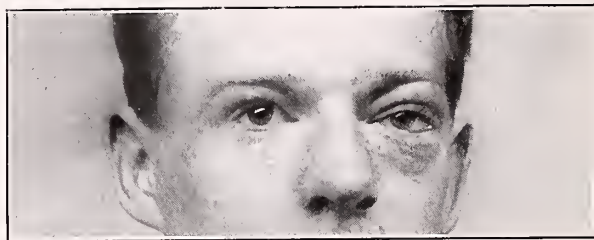
thrombus, leads to the diagnosis of obstruction of the central vein, due to proliferation of the intima.

Prognosis—In favorable cases the hemorrhage disappears by absorption and useful vision may be retained. In the majority of cases, however, the vision is lost. A few develop glaucoma and the eye is lost.

Treatment is unsatisfactory.

CASE II. A Case of Obstruction of the Ophthalmic Vein due to pistol shot wound.

S. C., male, aged 22. English, cook, entered the Clinic of the Ophthalmic Surgery December 15, 1913, complaining of diplopia, exophthalmos of the left eye, and difficulty in walking.



Photograph of Case II.
A case of obstruction of the ophthalmic vein.

History—Four months ago the patient was shot in the mouth with a thirty-two caliber revolver. Two attempts were made to remove the bullet. Immediately following the accident the pain was severe in the head, most marked at the vortex. About two weeks later, he began to have pain over the left eye accompanied by nausea and vomiting. The attacks came on as often as four or five times daily. They continued several days, then gradually grew less in severity and frequency. The patient now suffers no attacks of nausea or vertigo, but has occasional pain along the course of the left supraorbital vein. Diplopia was first noticed after the operation, but disappeared in four days, to return again three or four days later, and has remained constant since that time.

Examination—Vision right eye 5/4, left eye 5/4.

External examination. Right eye, negative, left eye, eyelids swollen, conjunctiva of lids normal, ocular conjunctiva congested, especially in the palpebral fissure.

Eyeball, marked proptosis, eye easily moved in all directions, and exophthalmos diminished by pressure. Measurement with exophthalmometer, left eye 7 mm. more forward than right eye. Tension with tonometer, right eye 20 mm. Hg., left eye 30 mm. Hg. Pupillary reflexes normal, pupil oval, long axis up and in.

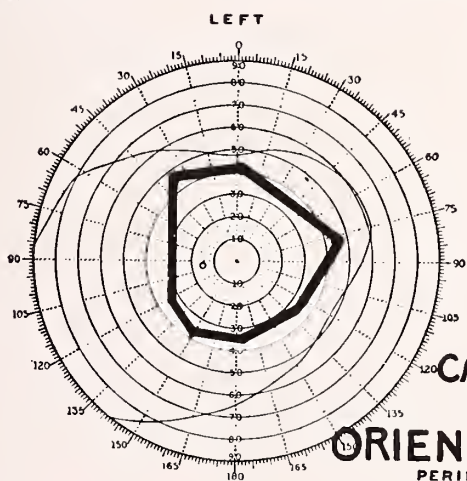
Ophthalmoscopic Examination.—Right eye, normal. Left eye, Media clear, nerve head congested, edges blurred, deep physiologic cup, lamina cribrosa seen, whole retina engorged,

especially the inferior temporal vein, whole retina edematous.

Fields—Form field of the left eye, slightly smaller than that of the right. All the color fields are somewhat contracted, no dyschromatopsia or other abnormality.

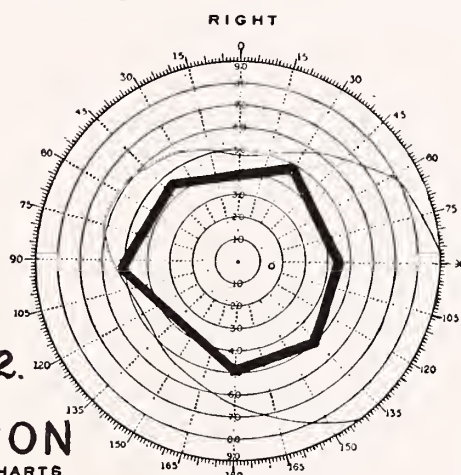
Fields of Fixation—Although the excursions appeared nearly normal, the fields of fixation show a slight limitation of the movement in temporal fields, more marked in left eye.

Blood Examination—B.P. 110 mm. Hg. Hemoglobin, 90%. R.B.S. 5,400,000; W.B.C., 10,450; Myelocytes, 0; Normoblasts, 0; Megaloblasts, 0.



CASE 2.

ORIENTATION PERIMETER CHARTS



Lymphocytes, small	15.8%
Large	1.5%
Transitionals	4.4%
Polynuclear Neutral	75.9%
Polynuclears Eosin	1.6%
Mast cells	.7%

X-Ray Examination—There is a foreign body apparently in the petrous portion of the temporal bone. It lies about on a line connecting the two external auditory meati and possibly slightly in advance and a trifle below. Its upper margin is tangent with the lower margin of the left external auditory canal and about one-third of the distance from the sagittal plane to the auricle. No fracture lines can be discovered. Skull is otherwise negative.

Otolaryngologic Report—Bullet wound in left soft palate; powder marks.

Nose: Vary badly deviated septum with small shelving spur on floor making contact.

Ears: Show no result of injury. Patient has spontaneous nystagmus of horizontal and rotary character.

Apparently both cochlea and vestibule of the left ear are quite destroyed.

Hearing in right ear, whisper 21 ft.

1-12-14. Vertigo test is diminished.

Hearing: Whisper in right ear normal; in left ear whisper test one inch, voice 12 to 18 inches.

Thrombosis of the ophthalmic vein is accompanied by pain over the brow, along the course of the supraorbital vein, marked chemosis of the conjunctiva, with absence of the subconjunctival hemorrhages, proptosis (non-pulsating and partially reducible by pressure), diplopia which may be accompanied by vertigo, nausea and vomiting. Ophthalmoscopic examination reveals veins moderately engorged, nerve and retina edematous.

As the course of the bullet was along the floor of the orbit, the pressure on the vein must have been due to fracture with displacement of bone in the orbit.

The changes in the fundus are not so marked

as in Case I, because the lesion being farther back, allows the collateral circulation to become established, the communication between the orbital and facial veins being very free.

CASE III. A case of hemorrhage at the base with pressure on sinus, deafness on left side, paralysis of the extrinsic muscles, nystagmus, and disturbance of return venous flow as shown by swelling of lids, marked chemosis of conjunctiva, engorgement of the retinal veins and protrusion of the eyeball.



Photograph of Case III.
A case of hemorrhage at the base of brain with pressure symptoms.

A. B., aged 20, American, occupation farmer, entered the clinic of Ophthalmic Surgery November 3, 1913. The patient was referred by Dr. M. S. Gregory, Eureka, Mich.

History—Eight weeks ago the patient fell from a bicycle severely bruising and scratching the right side of his face and head. There was some contusion of the right orbital region, although the eyes were not injured.

Four weeks ago the patient began to have pain in the left eye, which extended from the region of the eye to the top of the head. This was followed by photophobia, lacrimation, and gradual failure of vision. The eyeball became red and the lids swollen. Within a week the eye began to protrude and the patient suffered from headache, nausea and vomiting. He feels fairly well when not nauseated and when the headache is not severe; his appetite is good. Diplopia at first was denied, but afterwards admitted.

Examination—Vision, right eye 5/5, left eye, 5/30. Marked scarring, fine linear parallel lines, along right side of the face.

External Examination—Right eye. Palpebral aperture widened, lids slightly retracted. Eye cannot abduct beyond the median line, elevation and depression about normal, abduction slightly limited. Iris reflexes normal. Left eye, marked exophthalmos. Partial

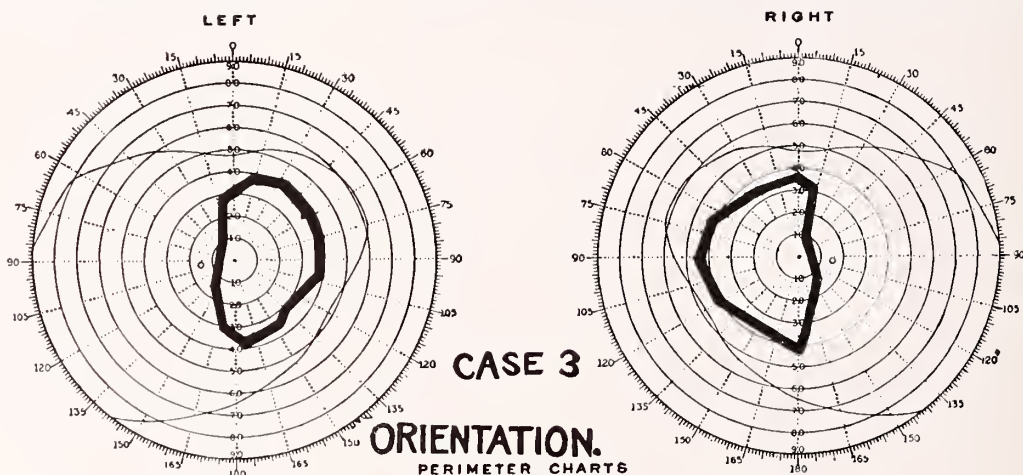
arteriovenous compression, otherwise normal. Retina and choroid normal, macula practically normal, possibly slight edema.

Left eye. Disc rings visible, but blurred so that disc borders are quite indefinite. Slight exudate overlying lower nasal border of disc. Veins markedly engorged and tortuous, arteries normal. Distinct arteriovenous compression. Retina hyperemic, edema marked; retina down and temporarily swollen and infiltrated. Macula markedly edematous, foveal reflex lost. No hemorrhages present in fundus. With fingers, slight pulsation of orbital contents, which could also be seen on close observation, probably transmitted.

Treatment—Protective pressure bandage applied and patient kept as quiet as possible. Atropin to keep pupil moderately dilated.

11/28. Fields. Right, normal. Left, slight contraction of form and color fields.

Orientation fields. Right, normal nasally, very markedly limited temporally. Left, mark-



ptosis, upper lid; cornea 1/2 covered. Eyelids cannot be closed because of chemotic swelling of the conjunctiva. Eyelids not thickened, some dilation of veins with edema of lid margins, upper lid freely movable, very slight discharge of a faint amber tint. The conjunctiva of the upper lid is congested. Ocular conjunctiva. Upper half-veins prominent, distended and twisted from limbus to fornix, no especial ciliary injection, as such. Lower half swollen, chemotic, opaque, protrudes between lids so eye cannot be closed. Position of the upper lid limits the conjunctival swelling so the border is nearly horizontal. Corneal surface slightly stippled. Iris congested but no marked iritis. Pupils freely movable. Reflexes normal. Exophthalmometer shows left eye protruding 19 m.m. being 7 m.m. further forward than right eye. Excursions limited. The eye is convergent about 20°. Tension normal.

Ophthalmoscopic Examination—Right eye Disc slightly blurred and hyperemic otherwise practically normal. Vessels not tortuous, slight

ly limited temporally, less nasally, slightly limited below.

Diplopia chart. Marked homonymous diplopia, varying but little in all nine positions.

Blood and urinary examination negative.

X-Ray Examination, negative.

Otolaryngologic Report. Spontaneous nystagmus of intracranial character. Hearing test, whisper in both ears.

Neurologic Report. Paralysis of external rectus, both sides. Some nystagmus on rotating right eye to the left; otherwise negative.

Wassermann Report. Negative.

Subsequent History—At no time has there been an increase in temperature or change in the blood.

11/13. Slight improvement. Less pain in eyes and head.

11/21. Eye can now be nearly closed, movements better, conjunctival swelling much reduced. Patient more comfortable.

11/28. Exophthalmos reduced to 3 mm. Vision, right eye 5/5; left eye, 5/30.

12/1. Ophthalmoscopic Examination. Disc swollen 1 diopter; retina more opaque, rendered hazy by diffuse exudate, edema more marked. There are now many minute circumscribed hemorrhages temporally mostly small and rounded; some large and more diffuse.

12/10. Chemosis of the eyeball has disappeared and tortuosity of vessels now quite as marked below as above. Fundus the same. Exophthalmos 4 mm.

This case presents a non-pulsating monocular exophthalmos with marked chemosis of the conjunctiva, engorgement of retinal veins, edema of the retina with hemorrhages, together with diminished hearing on the same side, nystagmus of intracranial type, and paralysis of both external recti. There are no evidences of infection or inflammation as shown by the absence of fever and blood changes.

DIAGNOSIS

Tumors of the orbit either primary or secondary to sinus involvement can be excluded by the mobility of the globe in all directions and partial disappearance of exophthalmos on pressure. The vascular tumors, aneurism or aneurismal varix, may be eliminated by the absence of distinct pulsation or a bruit. Thrombosis of the ophthalmic vein could give all the symptoms referable to the eye, but could not account for the loss of hearing, paralysis of the external recti, nor the presence of the nystagmus. Thrombosis of the cavernous sinus might give the eye symptoms here present, but all the nerves which traverse the sinus are liable to injury, the third being nearly always affected. Again in cases of cavernous sinus thrombosis, through the medium of the circular sinus, the process may extend to the other side, a complication which occurs in more than 50 per cent. of the cases (McEwen). Then, through stasis in the emissary vein of Santorini, edema over the mastoid may occur if the lesion originates in the sinus.

The history of traumatism followed by the symptoms as given, together with the marked improvement observed since the patient came under observation, seems to justify the diagnosis of hemorrhage, leading to pressure symptoms. The cause of the double abducens paralysis is difficult to explain.

DISCUSSION.

DR. GEO. SLOCUM: These cases are indeed exceedingly interesting, more especially, by reason of the difficulty in the diagnosis of the cases presenting exophthalmos, and because of the points of similarity of the vascular fundus lesions, all of which are due to interference with the venous return flow. In the cases with exophthalmos one must differentiate between cavernous sinus thrombosis and venous compression or obstruction resulting from the

trauma. In cavernous sinus thrombosis there is often pronounced exophthalmos with venous obstructions. However, in cavernous sinus thrombosis, pronounced and severe symptoms of sepsis are present. These cases do not present such symptoms and the blood examination is negative. Two-thirds of the cases of cavernous sinus thrombosis depend upon disease of the middle ear, and septic sinus thrombosis is always fatal unless surgical interference is successful. We have no ear disease in these cases. Marasmic sinus thrombosis is not always fatal but this form occurs only in the two extremes of life.

In the second case presented there must have been some fracture of the bone where the bullet passed through the base of the skull, but X-ray examination failed to reveal its location. A fracture might have occurred at the base, in the neighborhood of the sella turcica, causing a displacement of a fragment of bone, which could produce a compression of the anterior end of the cavernous sinus, sufficient to impede the return flow from the ophthalmic vein. Lack of the usual anastomotic connections of the ophthalmic vein would then result in pronounced exophthalmos with diplopia, from a simultaneous compression of some of the nerves of the eye muscles, all of which pass through, or in the walls of the cavernous sinus.

In the case of the patient who was thrown from a bicycle, no fracture was discovered by the X-Ray however, a fracture of the body of the sphenoid at the side of the sella turcica, too small to be revealed by the plate, might easily produce a hemorrhage from the vessels of the diploe, which could compress the sinus from below where the sinus wall is very thin, sufficiently, to obstruct the return flow from the ophthalmic vein and thus produce the symptoms. This would answer all the questions presented in the diagnostic study, with the exception of the bilateral abducens paralysis in the last case. Whether the hemorrhage came from such a fracture of the sphenoid or whether it came from the rupture of one of the blood vessels in the immediate neighborhood of the cavernous sinus is a question for consideration but when we remember the dense fibrous character of the upper wall of the sinus and the fact that the sinus is thereby held firmly open, even when empty of blood, the probability of a hemorrhage on the upper surface of the cavernous sinus producing pressure, appears remote. It would therefore seem more than probable that the hemorrhage occurred from the under surface of the cavernous sinus, that is, from broken veins in the diploe. The possibility, that a fragment of bone from such a fracture might take part in a compression of the sinus in this case also, must be considered.

DR. PARKER (closing the discussion): There is one condition in the last case reported that does not seem to be fully explained, namely, the paralysis of the external rectus in each eye. The absence of diplopia would suggest the possibility of the existence of a lesion of long standing, independent of his accident. Patients who develop a sudden paralysis of the ocular muscles usually complain of the double vision as the most distressing symptom, while this patient suffered little or no discomfort from this symptom. A fracture of the sella turcica might lead to pressure on the sixth nerve on both sides, while the resulting hemorrhage might be limited to the left side. It would not be difficult to imagine a fracture at this point which might not be demonstrable by the X-ray. These are rare cases, and to have all three under observation at one time is most unusual.

- (1) A CASE OF HYDRAMNIOS AND TWIN PREGNANCY.
- (2) A CASE OF ABDOMINAL CESAREAN SECTION FOR AN OBLIQUELY CONTRACTED PELVIS.

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I have for your consideration this evening two obstetric cases showing features of interest.

CASE 1. Mrs. W., age 28, entered the Maternity Clinic November 8, 1913, complaining of dyspnea, great abdominal distention, inability to retain food by mouth and difficult urination. Her history was negative until the present pregnancy. She had had five children, all living, without complication during the pregnancies and puerperia, and one abortion at two and one-half months, cause unknown. From her history, she was six months pregnant. The present pregnancy had been in all respects uneventful until the fifth month, four weeks before entering the Hospital. At this time she first began to notice a rapid abdominal distention, accompanied by difficult respiration. In three weeks the waist line increased slightly more than six inches. For several days prior to coming to the Hospital she had been unable to lie down, or to retain food and urination had become difficult. Quickening was first noticed at the beginning of the fifth month, and movements had been felt daily since.

Examination: General: Patient of moderate build, good nutrition, pulse 118, respiration 26, temperature 98.6°. Conjunctivae and mucous membranes of good color. Face flushed and anxious, dyspnea marked, slight cyanosis of lips.

Thorax: Lungs negative. Heart displaced outward and upward. Breasts: pendulous, Montgomery's follicles enlarged, primary and secondary areola present. Colostrum easily expressed.

Abdomen: Markedly distended from pubes to ensiform, symmetrical, domeshaped, much larger than full term pregnancy. Slight bulging in flanks. (Figure 1.) Broad striae in lower quadrants. Linea nigra to umbilicus. Palpation gave very cystic feel, some edema above symphysis. No tumor mass felt. Fetal parts not made out. No movable areas of dullness. Auscultation showed a faint fetal heart in the left lower quadrant half way on a line between umbilicus and anterior superior spine, rate thirty-six to quarter minute. A second fetal heart could not be heard, although the possibility of twin pregnancy was thought of. There was marked edema of the feet and abdominal wall above symphysis.

Vaginal Examination: External and internal perineum lacerated. Marked Chadwick's sign. Moderate whitish vaginal discharge. Cervix: old bilateral laceration, soft and patulous. Admits finger with ease. A fetal head at superior strait, freely movable.

Diagnosis: From the above findings, combined with the history of rapid distention, a diagnosis of hydramnios was made.

Treatment: As it was obvious that the patient could not continue throughout pregnancy in her present condition on account of the daily increasing distention and inability to eat or sleep, it was decided to puncture the membranes through the cervix for immediate



Fig. 1. A case of hydramnios with twin pregnancy.

relief. The patient was accordingly prepared for operation and put upon the table, but was unable to lie flat on account of the dyspnea and had to be supported. The membranes were punctured with a fine trocar as high up as possible and four liters of amniotic fluid drained off with immediate relief to the patient who fell asleep for the first time in several days.

The patient was immediately put to bed in the hope that with the high puncture of the membranes only a portion of the amniotic fluid would come away. However, the fluid continued to drain and three or four liters came away in the bed, making in all between seven and eight liters. The uterus was mas-

saged to facilitate contraction and the patient left in good condition. About six hours later, the patient went into labor and was delivered of still born, premature double ovum male twins. The puerperium was uneventful and the patient left the hospital on the thirteenth day in excellent condition. The Wassermann reaction was negative.

Hydramnios occurs about once in two hundred pregnancies. Minor degrees with two or three liters of amniotic fluid are not uncommon, but the more marked grades are not frequent. In rare instances the uterus may contain an almost incredible amount of fluid, Küstner having observed fifteen liters at the fifth month, and Schneider thirty liters at the sixth month.

There has not as yet been a satisfactory or universally accepted idea as to the etiology of hydramnios. From the fact that the amniotic fluid is normally derived from the fluids of the mother which have been modified by the secretory activity of the amniotic epithelium, while the fetal kidneys take no part in its production, except in abnormal cases, it is impossible to give an explanation for its excessive production which will be applicable to all cases. Generally, however, authorities agree that the excess of amniotic fluid may be derived from several sources: from the fetus, from the mother, from the mother and fetus and occasionally from the amnion. According to Williams, "in something less than one-half the cases careful examination of the fetus after death reveals some abnormality which may or may not bear a causal relation to the disease. Most frequently the abnormality which is supposed to give rise to hydramnios is to be found in lesions which cause obstruction to the circulation, either in the cord or within the foetus." Opitz observed cirrhotic changes in the liver in all his cases. Woerz and Bar, and Nuberding found heart disease. Many authorities believe hydramnios to be due to an excessive urinary secretion. In Wilson's analysis of fifty-one cases of hydramnios occurring in multiple pregnancy, twenty-two of the twins were uniovular and when we take into consideration that these are much less frequently observed than the double ovum variety it becomes evident that something connected with the former has a bearing on the excessive production of amniotic fluid. As a rule, the hydramnios is limited to a single amnion. The kidneys and heart of the fetus having hydramnios are both actually and relatively larger than those of the other twin. At times cardiac and renal disease or visceral syphilis in the mother are associated with edema of the placenta and an increased transudate into the amnion. Wolf has shown that nephrectomy in pregnant rabbits is followed by increased renal activity on

the part of the fetus, with consequent hydramnios. Occasionally inflammation of the amnion itself is supposed to favor the production of the condition.

In the case under consideration it was at first thought that the twins were uniovular because of the firm fusing of the placentae. On more minute examination, however, two separate placentae could be distinguished although they could not be separated. The membranes were rather badly torn but the remnants of two chorions could be found. This was proof that the twins were of the double ovum variety. At autopsy the larger twin weighed 1080 grams, the smaller 730 grams. According to the pathologist, Dr. Warthin, the fetal heart of the larger twin was larger than normal for the size of the fetus, while that of the smaller was subnormal for its size. In the light of these findings the fact that the twins were double ovum can be explained only in one way; that contrary to the rule in double ovum twins the blood spaces of the two placentae had fused as well as the surrounding tissue and that to all intents and purposes they were single ovum twins in which the stronger heart had dominated the circulation and enlarged at the expense of the weaker.

CONTRACTED PELVIS, CESAREAN SECTION.

CASE II. M. S., age 23, primipara, entered the Maternity Service September 24, 1913. Her family history is negative. Her personal history shows one incident bearing on the case. At the age of two and one-half years the patient fell, severely injuring the right hip. After this accident she was in bed for a year and did not walk again for eighteen months, and then with a limp which has persisted. There are no points of interest in the history of the present pregnancy which was in all respects normal. The Wassermann reaction was negative. The following are the points of interest in the physical examination:

Abdomen: Domes shaped, many fresh striae in lower quadrant, faint linea nigra to umbilicus. Fundus at time of first examination, two finger breadths above the umbilicus. Fetal breech in fundus, back on right, small parts on the left. Fetal heart best heard in right lower quadrant, one-third the distance on a line from umbilicus to anterior superior spine. Position, right occipito-anterior.

The right leg is ten centimeters shorter than the left, and is fixed at hip. The pelvis tilts forward and the patient has a marked lordosis. (Figure 2). With the patient on her back the lumbar region cannot be brought closer than seven or eight centimeters to the table. The left anterior superior spine is two centimeters higher than the right.

PELVIMETRY:

Intercristal	25 cm.
Interspinous	25.5 cm.
Bitrochanteric	29.5 cm.
External conjugate	16.5 cm.
Pubic angle	85°
Bis-ischial	8 cm.
Antero-posterior of outlet ...	11 cm.
Anterior sagittal	5 cm.
Posterior sagittal	8 $\frac{1}{4}$ cm.
Diagonal conjugate	11 cm.
Conjugate vera	8.5 to 9 cm.



Fig. 2. Obliquely contracted pelvis ducts to early injury of the right hip, Cesarean section at term.

The X-ray confirmed the diagnosis of right occipito-anterior position and showed that the pelvis was asymmetrical. The neck of the right femur had almost entirely disappeared from what was in all probability a tuberculous process dating from the patient's fall when two and one-half years of age.

The classification of the pelvis is interesting. In the first place the deformity is asymmetrical. From the extra weight on the sound or left leg and the shortening in the right, the left side of the pelvis is shoved upward and compressed anteroposteriorly, giving an obliquity to the superior strait. The compensatory lordosis throws the promontory forward and increases the angle of the pelvic inclination with, as a consequence, a shortening in the external diagonal and true conjugate, giving a flat pelvis. Ordinarily the small difference between the intercrystal (25 cm.) and the interspinous (25 cm.) diameter would make us suspicious of a rachitic pelvis, but as the patient gives no history and had no other signs of the disease, this can be ruled out. The bis-ischial diameter of the outlet measures eight centimeters, which is just within the limit of the "funnel pelvis."

Taking into consideration the obliquity of the superior strait there is present an obliquely contracted, flat, funnel pelvis.

It is in these "border line" cases with the conjugate vera of 7.5 to 9 centimeters that the greatest difficulty is found in predicting the course of labor. In the case under consideration (conjugate vera 8.5-8) with the position right occipito-anterior, it was thought that labor would probably be spontaneous as the bi-parietal diameter was in relation with the long right oblique and as the child was of moderate size. However, upon second examination it was found that the position had changed to left occipite-anterior, the bi-parietal diameter now corresponding to the short left oblique diameter. In the light of this change of position, it was decided that the outcome of labor would be doubtful, inasmuch as even if descent did occur all obstacles to labor might not be overcome, since in many cases the inward projection of the ischii leads to faulty rotation. In the interests of both mother and child, Cesarean section at term seemed the procedure of choice.

Operation: The patient went into labor November 23, 1913 and was allowed to proceed for four hours. Rectal examination then showed the head still movable at the superior strait, and the patient was taken to the operating room for Cesarean section. The classical conservative operation was performed by Dr. Peterson, the patient returning to bed with a pulse of 80. The child was a healthy male and required no resuscitation. The convalescence was in all respects uneventful, both mother and child leaving the Hospital on the twentieth day after operation.

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DISCUSSION.

DR. REUBEN PETERSON: Acute hydramnios is rather a rare disease of pregnancy and interesting, since its causes are rather obscure and it usually calls for active treatment if the patient is to obtain any relief. If my memory serves me correctly I have seen at least four cases of this complication. In three the condition was associated with monstrosities, that is, in each instance the fetus was malformed, which probably had something to do in causing the excess of amniotic fluid. In each instance the membranes were punctured in order to relieve the patient of her distressing symptoms.

The same method was employed in the withdrawal of the fluid as described by Dr. Seeley, the membranes being punctured high up with a fine needle. The fourth case came on toward the end of pregnancy, the child being especially large. The membranes ruptured spontaneously, fortunately, without prolapse of the cord.

It must be borne in mind that postpartum hemorrhage is quite common after hydramnios, either acute or chronic and must be guarded against. Chronic hydramnios is much more common than the acute form of the complication. Personally I have never seen good result from bandaging. Premature labor is very apt to result. With rupture imminent, puncture of the membranes is better than waiting, since spontaneous rupture is very apt to result in prolapse of the cord or malpresentation.

In reference to the case of Cesarean section, it seemed to me advisable with the deformity present to allow a test of labor. Even if the position of the fetus had not changed at the last, I do not believe the child could have been born alive by the natural passages, either with or without instruments. Elective Cesarean section at the beginning of labor before rupture of the membranes, in the absence of vaginal examinations, ought to be practically without mortality for both mother and child.

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Editorials

DUES—LAST NOTICE.

By direction of the House of Delegates all members whose dues remain unpaid on April 1st will be placed upon the suspended list, their JOURNAL discontinued and legal protection be denied them during the period of their suspension.

Are your dues paid? If not please send your check at once to your County Secretary. A two cent stamp on an envelope containing your check and addressed to your County Secretary will obviate your suspension. You cannot afford to be negligent in this matter.

PROSTATECTOMY.

Impartial judgment of the relative value of any surgical procedure is to be had only in the light of exact knowledge of the embryology, anatomy, physiology and pathology of the part involved.

The prostate gland, now for a long time the ground for much contention as to the proper avenue of approach in operations for its partial or entire removal, has, until very recently been described by anatomists as a gland consisting of two lateral lobes connected by an isthmus or by a wedge-shaped portion lying between the ejaculatory ducts and the posterior portion of the urethra. They are uniform in the paucity of their description, and in their lack of a comprehensive study of the relations, upon which much light has been thrown by the excellent research of the past few years.

Among those who have developed the embryology, histology, anatomy and pathology of

the gland to the point of definite knowledge are Young, Geraghty and Stevens 1906, von Frisch 1910, Geraghty and Boyd 1911, Tandler and Zuckerkandl 1911 and Lowsley 1912. These five reports cover practically all that is of value pertaining to these phases of the subject.

That there might be no confusion in terminology, it would seem advisable to sum up concisely our working knowledge of the recent data upon the developmental anatomy of this highly important structure.

According to the conclusive work of Lowsley, the prostate is composed embryologically of five distinct lobes, and within the past two months the same author has demonstrated the undoubted persistence of the same divisions in the adult gland.

These divisions consist of an azygos middle lobe, situated between the bladder and the ejaculatory ducts, under the floor of the urethra (prespermatic and post-urethral); two lateral lobes, arising from the prostatic furrows and lateral walls of the urethra and extending laterally and posteriorly from that structure; a posterior lobe lying dorsal to the ejaculatory ducts above their entrance in the urethra and posterior to the urethra below this point (post-spermatic and post-urethral); and a ventral lobe formed by glands arising from the anterior or ventral wall of the prostatic urethra. This ventral lobe has a tendency to atrophy by the twenty second week, though it has been found present in modified form in every post-natal specimen examined. It is, as a rule, inconsequential, but in rare cases, there is a marked hyperplasia, and if there be a concomitant lateral and middle lobe enlargement, there is formed the so-called prostatic *collarette*.

The middle lobe and the lateral lobes are not separated by tissue partitions, but are shown, by careful study, to be independent, though, for practical purposes, this independence of structure is a negligible factor and they may be removed in one mass.

The posterior lobe is the only portion of the gland which can be felt by immediate palpation per rectum. It is separated from the middle and lateral lobes by a lamella of connective tissue of varying thickness and this layer is rather intimately connected with the sheath of the ejaculatory ducts, the whole offering a distinct plane of average in the process of enucleation. In suprapubic prostatectomy it is doubtful if the ejaculatory ducts are ever removed, but, on the other hand, it is also certain that the posterior lobe is not enucleated. This latter fact would be of no importance in true uncomplicated hypertrophy, where the posterior lobe is almost pressed out of existence, forming really a pseudo-capsule, but it would be of great importance in carcinoma, with or without hy-

pertrophy. For, as Geraghty and Boyd have shown, prostatic hypertrophy rarely or never begins in the posterior lobe, and *carcinoma rarely or never begins anywhere else*.

We cannot forbear calling attention to the so-called accessory glandular structures of the prostate, inasmuch as they often lead to confusion in cystoscopic diagnosis, and, being frequently mistaken for middle lobe enlargement, may prove stumbling blocks in the choice of the method of attack. The subcervical group of Albarran occupies a strategic position at the vesical orifice. The tubules of this group lie under the neck of the bladder, between the mucosa and the musculature and the ducts open into the urethra, just over the internal sphincter, so that any slight increase in their size would cause very grave obstruction to urinary outflow, with all the objective evidences of prostatic obstruction. This type of enlargement has been found in over 13% of cases examined; a most important consideration for, when present alone, it does not offer a field for complete prostatectomy, but had better be handled by the partial prostatectomy or "punch" operation of Young, (which heals in a linear scar) or by the *prostatotomy* of Chetwood, as in the case of fibrous median bar or contracture of the vesical neck. If combined with lateral hypertrophy it may be removed en masse with the other lobes by the suprapubic route, or shelled out on a spoon tractor by the perineal route, after enucleation of the lateral and median lobes. The signal position of this enlargement, even when so small as almost to escape attention, renders it, by the same token, an added menace to operative success. For, though urine may often pass with apparent facility through two greatly hypertrophied lateral lobes, the tiniest nub of subcervical enlargement may cause a tremendous residual, with subsequent alarming symptoms of back pressure on ureters and kidneys, and the surgeon is not infrequently surprised to find a persistence of signs and symptoms after a careful perineal removal of a very large prostate, because he has neglected the last but most important step of enucleating this tiny extra-prostatic lobule. In suprapubic operation this lobule is usually removed with the prostate. It has been argued theoretically, that, in the anatomically correct enucleation of Bentley Squier such an enlargement might possibly be overlooked through the very fact of adhering closely to the natural plane of cleavage. The ventral lobe over which Squier begins his enucleation is virtually submucous as far as the urethra is concerned, but lies outside the vesical musculature, while, as before noted, Albarran's lobule lies between the muscle and the mucosa, and in performing a careful, non-tearing operation such as Squier's, one might possibly, in passing from the sub-

mucous to the submuscular plane, leave *in situ*, one, at least, of the possible causative factors in obstruction. The writer would, simply, call attention to the histologic-anatomic disposition of these extra prostatic lobules. It is true that they lie in different histologic planes from the middle lobe, but the fact that the ducts of Albarran's lobe enter the floor of the urethra just proximal to those of the middle lobe, with no sharp line of demarcation between, make it almost impossible to miss them by this method.

(From the most recent observations it seems probable that where there is enlargement of Albarran's glands, together with prostatic hypertrophy, that the latter grows *outside* the sphincter, or at least, lateral lobe enlargements do, and some of the posterior portion of the sphincterics ring is removed with the mass.)

The presence of such a lobe may explain in large part the occasional persistence of residual urine following prostatectomy by the perineal route, as pointed out by Young, although intrinsic enlargement of the trigone and tabes must always be borne in mind as possible contributing factors. Not infrequently does the trigone play an important part in urinary obstruction, a fact which is apparently lost sight of by most observers. In tabes, dilatation of the posterior urethra, and internal sphincter, in conjunction with vesical atony, often give rise to a relative enlargement of the trigone with residual persisting after removal of the gland.

A consideration of the other accessory structures, the so-called sub-trigonal glands of Home would lead us afield, for, though they may cause obstruction, they should never be mistaken for prostatic enlargement. They are rare, only two cases being found in 120 examined by Lowsley at Bellevue.

Queries insistently recur as to the ideal time for performing prostatectomy; as to when, under unfavorable conditions, one dare operate; and there is continuous argument as to the best avenue of approach to the gland.

The ideal time to operate would seem to be as soon as definite obstruction is diagnosed, while the bladder is still compensating and before infection has intervened. To wait for the so-called second stage of obstruction is certainly not ideal, for this period is practically synchronous with beginning back pressure on the kidneys, and with the onset of catheter life and inevitable infection. Granting that in certain cases palliative measures, such as irrigation and dilatation, have proven efficacious, it would still seem, that this is, as a rule, only temporizing, for practically all obstructions are progressive in type. If, under given conditions palliative treatment be deemed advisable, as in cases cited by Bransford Lewis, a few weeks at most should suffice to establish the fact, after

which delay is merely putting off the evil day, for the kidneys will never be in as good condition to withstand sudden change of pressure. On the other hand, to operate suddenly on a case which has lately become infected through instrumentation may prove dangerous, as such cases often become generally septic, whereas the old stager, who has long ago acquired a local resistance may have an uneventful convalescence.

In the class of cases presenting with a long history of obstruction and evident back pressure, a most careful pre-operative treatment is necessary. Whatever be the type of therapy employed, the end result to be sought for is a sign of willingness on the part of the renal parenchyma to react kindly to the change in pressure, brought about by the sudden institution of an inlying catheter regime. Usually the patient has been passing the catheter every six hours himself. This leaves quite a back pressure in the hours immediately preceding catheterization. After prostatectomy the pressure will presumably be removed. The only way then to ascertain what the kidneys will do on this sudden relief of long continued pressure is to institute continuous drainage, studying daily the change in urea concentrating capacity, as well as the tubular function. (Urea concentration may best be studied by the new Soy bean fermentation test of Marshall, and the best colorimetric estimate of daily increase of tubular activity is undoubtedly to be had by the use of Phenolsulphonphthalein.) It is not here a question of the *actual* values but of the *relative* daily rise in elimination. If, under treatment, the function increases ever so slightly with inlying catheter there is little danger of complete suppression whatever other condition may supervene. A phthalein reading of 15% the first hour and 10% the second, increasing to 25% the first hour and 15% the second, has proved, by recent experience, to offer a suitable ground for operation, if urea concentration is good.

Operative interest of today is divided mainly between two methods of approaching the prostate; the suprapubic operation in its various modifications, and the perineal approach as perfected by Young.

The advantages claimed for the suprapubic route are, briefly: facility and expediteness; lower mortality in the hands of the majority of operators; lessened chances of incontinence; and lack of danger of injuring the rectum.

That the suprapubic method is easier and quicker is undoubted. That the death rate is lower is questionable. Mortality statistics of certain expert operators show a decided advantage in favor of the lower route. In the hands of the majority, however, the reverse is true.

The combined statistics of a large number of

good operators show less incontinence from the suprapubic than from the perineal method, but on the other hand Young's statistics show no cases of permanent incontinence in over six hundred perineal prostatectomies. Careful incision of the membranous urethra with a consideration of anatomic relations should preclude this possibility. By the upper route, incontinence is a rare sequella unless the operator forcibly tears through the triangular ligament and external sphincter and, even then, the internal sphincter may regain control if the operator's finger has kept within the muscle ring. By the suprapubic route, injury to the rectum is almost impossible, for the latter is well protected from the operator's finger by the posterior lobe and the fibrous lamella in front of it.

The relative disadvantages offered for the suprapubic method are: greater hemorrhage, longer convalescence in bed, difficult drainage, the fact that the operator works, in most cases, by tactile sense alone; inability to reach the posterior lobe, as in carcinoma, and loss of sexual power.

From a practical standpoint hemorrhage is greater from the suprapubic route, but Squier has recently pointed out that most alarming hemorrhages result from the usual attack on the most prominent portion of the gland, the operator's finger passing posteriorly *outside* the sphincter and immediately encountering the posterior plexus of veins. This danger is abrogated by beginning enucleation over the anterior submucous lobe, and keeping within the sphincter as the finger sweeps posteriorly. It is scarcely necessary to mention the fact that the prostate in process of hypertrophy, grows up between the urethra and spineter, pushing the latter outward and flattening it into a thin band, so that it is very easy for the finger unwittingly to slip outside it. There is, however, always considerable hemorrhage from the trigonal vessels. Keyes has, within the month, proposed to control hemorrhage by passing a suture on a Peaslee needle from without, through the intact perineum, catching the flap of bladder mucosa on each side, re-inserting the needle through the perineum and bringing back the suture to the perineal surface at a point opposite the initial puncture. Both of these methods undoubtedly aid in the control of hemorrhage, but it is probable that the method of Lower, of allowing a carefully dissected flap of bladder to fall into the wound is even more helpful in this regard.

In the comfort of the patient and rapid convalescence, the perineal route offers superior advantages. The tubes and packing are removed in twenty four hours and the patient sits up in a wheel chair on the second day after operation, with dependent drainage, while by the suprapubic method the patient, at best, is long-

er in bed and even with a carefully applied Walker pad, is decidedly uncomfortable.

It is an error however, to claim that drainage is better by the perineal route, for, with a high bladder incision, the symphysis does not obstruct drainage, and moreover suprapubic cases do not altogether depend upon gravity for drainage, but mainly upon abdominal pressure.

That the operator works by the tactile sense alone is true in most cases, but this is not necessary, as demonstrated in the technic of Lower. To reach the posterior lobe is practically impossible by this route. That the sexual power is destroyed by this method is doubtful, for the ejaculatory ducts are surrounded by a dense fibrous sheath, imbedded in turn in the interlobular lamella. The real danger here, lies, not so much in extirpation of the terminals of these ducts, as in trauma to their walls with subsequent *epididymitis*.

The advantages claimed for the perineal route are: the ease of access to the prostate; the clear view obtained; the ability to use other instruments than the finger, as in the case of fibrous non-enucleable glands; the fact that carcinoma can be handled by this method only; the shorter and more comfortable convalescence, which is all important in the aged; decreased mortality in expert hands; lessened hemorrhage and sepsis; no cases of incontinence following careful dissection; preservation of the floor of the urethra with the vesical sphincter, verumontanum and ejaculatory ducts, thus lessening the tendency to epididymitis from ascending infection, and to post-operative impotence.

The ease of access to the gland, the excellent view obtained and the ability to use other instruments than the finger would make it seem the reasonable avenue of approach in attacking non-enucleable fibrous or myofibromatous prostates, which types were found singly or combined in 17% of the 120 case studied by Geraghty.

Microscopic study of serial sections has demonstrated that, at the apex, the developing tubules run in a caudad direction and are more firmly imbedded in the capsule than elsewhere. This is an important consideration, for it is questionable whether some of the tubules are not left behind in suprapubic enucleation to cause later trouble, whereas, in the perineal method, these apical adhesions are snipped away by scissors, in full view of the operator.

Carcinoma occurs in about one case in five of all enlarged prostates in men above fifty. As previously stated, carcinoma rarely or never occurs outside the posterior lobe, advancing in the line of least resistance over the base of the prostate, here no longer protected by the fascia of Denonvilliers and passing along the seminal vesicles and into the intervesicular space. From the schirrus nature of the type found here and

the confined avenue of growth, it would seem rational to approach all such cases by the perineal route, either for conservative or radical excision: for, in Young's method, the posterior lobe is fully exposed to view, and, if carcinoma be suspected, an exploratory incision or excision, for immediate frozen section, may, under favorable circumstances, sanction a radical operation.

The shorter convalescence by this route is a great factor in the prevention of hypostatic pneumonia in aged, critical cases. Hemorrhage should primarily be less, for the trigonal vessels are left intact by this method, and whatever bleeding takes place is more easily controlled by packing the collapsible fossae of the lateral lobes, than can be practicable in the suprapubic operation. Incontinence should never take place if careful technic be observed, and the same delicacy in manipulation should lead the operator away from all contact with verumontanum and ejaculatory ducts.

The objections offered against the perineal route lie in the difficulty of the operation, except in the hands of a few; the danger of tearing into the rectum; the possibility of severe hemorrhage from cutting into the bulb; the length of time required for operation; the possibility of incomplete removal, and the fact that this route is claimed by many to be suited only for the removal of lateral hypertrophies or sessile median growths and that median bars and contractions are much better treated through suprapubic incision.

One mistake commonly made in perineal prostatectomy is that the perineal incisions into the gland are not made deeply enough, so as to go completely through the connective tissue layers, separating the posterior from the lateral lobes. This leads the finger or instrument into the outer capsule again, where the anterior capsule of the posterior lobe becomes lost in it, and enucleation of the real offenders, the middle and lateral lobes, is not possible until the incision is made into the capsule containing them.

By the perineal route there is no danger of cutting into the rectum, if the tiny recto-urethralis muscle be sectioned. This muscle holds the anterior rectal wall tightly against the membranous urethra, in part of its length, forming the *ressie du rectum* of the French and on section of this muscle the rectum falls away with ease, leaving a clear view of the periprosthetic tissues. Danger of bulbar hemorrhage is minimal as the peri-bulbar tissues stand out plainly as landmarks under careful dissection. The slight increase in time required in perineal prostatectomy is negligible, with the use of anoci-association and nitrous-oxide-oxygen anaesthesia.

If, as has been argued, many prostates are incompletely removed by this route it is be-

cause the operator, after removing the evident enlargements, neglects to examine the oblique, cornu-like cavities which usually run up under the bladder in the direction of the ureters. Not infrequently large masses of hypertrophy lie in these cornua, and if only the lower portions are taken out these upper ligaments slip down later, under the trigone, and cause a recurrence of obstruction.

Contractures of the vesical neck and median bars may be examined with ease through the opening in the urethra. Failure to relieve obstruction is too often due to the desire of the surgeon to remove a large mass of gland, rather than to reduce the obstruction of urination. Examination of the vesical orifice should be the last step in every perineal prostatectomy. Under proper dissection, virtually the whole trigonal area can be examined by this route!

Both fields offer equal opportunity for anoci-association.

From a study of the above facts, one is led to the conclusion that, as a general thing, the suprapubic route is the safer one, but that under proper conditions, the perineal route offers much more satisfactory results, especially in carcinoma and in critical cases.

By whatever route, however, we decide to approach the gland, it should always be remembered that the act of prostatectomy is only one step in the procedure. Exhaustive diagnosis, careful choice of procedure with due regard to all contributing factors, infinite care in technic and a minute pre-operative and post-operative study of physical and chemical equilibrium; these are the steps which, aside from adventitious circumstance, spell success or failure, and which, if carefully considered in their bearing upon each case as an individual problem, will still further reduce the mortality in this most important operation.

H. W. PLAGGEMEYER.

UTERINE DISPLACEMENTS

It is safe to say that there is no subject in gynecology concerning which there have been more erroneous ideas or more false teaching than that of mal-positions of the uterus. The older gynecologists wasted much ingenuity and expended much energy in devising methods for the correction of certain positions which in themselves are either of no clinical importance or are but incidents of conditions which are the primary cause of the symptoms.

It was the old idea that the uterus must lie anteriorly and be slightly anteflexed, and whenever it was found in any other position treatment was instituted to make it conform to this conception of the normal. We now know that the organ is subject to considerable variation of position, without any symptoms referable to the change. Thus the whole subject

of anteversion has been dropped and we recognize but one abnormal anterior position, namely, extreme anteflexion of the fundus upon the cervix.

Gradually too, it is becoming recognized that there are many cases of mobile retroposition, especially in the nullipara, which give rise to no symptoms.

Ascensus, the lateral displacements and the torsions are complications, or rather incidents, of a more serious condition, such as pelvic inflammation, uterine myomata or ovarian tumors. Their treatment is not to be disassociated from the treatment of the general lesion.

Retroposition, descensus and prolapsus are the important mal-positions. They are but stages in the progress of the same condition, a retroposition being the first step in the downward progress of the uterus. When not combined with descensus it is doubtful if any symptoms result. Undoubtedly, there are thousands of young women being treated for retrodisplacement who would be far better off if they were let entirely alone or gave of their time and money in endeavoring to build up their general health or to correcting a generally faulty posture.

Retroposition, however, in a woman who has had children, is associated with descensus and it is the descensus, rather than the backward displacement, which causes the mischief. It may require a long period of time for such a descensus to become a complete prolapsus and it is during this time that the invalidism is most pronounced. Once the prolapsus becomes complete, many of the distressing symptoms are lessened.

The operations which have been devised to correct retroposition are many: it is said that they number not far from one hundred and twenty-five. They may be divided into two classes: first, those operations in which new and false ligaments are fashioned for the uterine support and second, those operations in which the normal ligaments are shortened in various ways. In complete prolapse, a third class may be added, that of vaginal fixation.

Operations on the second class are most in vogue, particularly the Gilliam and its modifications, and the Webster-Baldy. The latter is particularly applicable when there is marked prolapse of the ovaries. When the prolapse is at all marked, these operations to be successful must be combined with extensive plastic repair of the pelvic floor. The third type of operation is applicable only when the patient is beyond the child-bearing age or after artificial sterilization.

Of these procedures none is so good as the Watkins operation frequently called the Wertheim vesical fixation. It should be noted that the credit for this valuable method should be given to Watkins of Chicago, who described

the procedure at least a year before the appearance of Wertheim's paper.

Those who attended the Flint meeting of the State Society will recall Watkin's clear description of his technic and *THE JOURNAL* is fortunate in being able to present to its readers, in this issue, Doctor Watkin's paper.

B. R. SCHENCK.

Editorial Comments

The Detroit College of Medicine and Surgery has recently issued a very attractive catalogue and announcement for 1913-1914 composed of 125 pages with several half-tone illustrations. The teaching staff of the college has been divided and sub-divided into ten departments and ten sub-departments, the heads of which constitute the faculty. In all some 168 members compose the entire teaching force and we understand that some fourteen are full time paid professors. It may be safely stated that the college, with the standards adopted during the past year, is bound to accomplish the attainment of a high standard.

The following extract from a letter received from the Secretary of the American College of Surgeons is self explanatory.

"If you will take pains to observe those accepted from your community, it will undoubtedly occur to you that there are a number of other surgeons who should be on the list. In fact, the most effective criticism that could be launched against our organization would be that we should designedly exclude any man who meets the requirements and who would be interested in the organization. While designedly we should not exclude any acceptable candidate, the result will be the same if, through carelessness or thoughtlessness, we fail to include all surgeons of ability. Any such men, if not allying their influence with us, would afford much comfort to the man who is unable or unwilling to meet our requirements for membership.

"We have until November 1st, 1914, in which to suggest for membership surgeons of ability who should be admitted to fellowship without examination. It seems not only proper, but advisable, that each Fellow make himself a committee of one to see that no surgeon of conspicuous availability in his community fails to receive an invitation to join the college. Application blanks will be sent to any surgeon on request of any Fellow.

"This suggestion is not made with the idea of merely increasing in number the fellowship of the American College of Surgeons, but to avoid so far as possible inflicting an injustice upon the College or worthy surgeons by excluding acceptable men from membership."

The Detroit Pediatric Society was organized on January 28th, 1914 with the election of the following officers: President, Dr. T. B. Cooley; Vice-President, Dr. H. M. Rich and Secretary-Treasurer, Dr. Francis Duffield. The object of this organization, as stated in its Constitution and By-Laws, is to study the pathology, physiology and therapeutics of infancy and childhood. Its membership is composed of three classes—active, associate and honorary, with the active membership limited to twenty. The Secretary informs us that the Society is anxious to have associate members throughout the state and those desirous of thus becoming affiliated with the organization may secure information by applying to him. *THE JOURNAL* extends to this new organization its good wishes and offers the pages of *THE JOURNAL* for the publishing of its transactions and the papers that are presented by their various essayists who will appear upon their programs.

The scientific editorial contained in this issue on Prostatectomy is, we believe, of extreme interest and a valuable review of the entire subject. Dr. Plaggemeyer has covered the subject in an impartial manner and has given us the most recent opinions of recognized authorities.

Are there any meetings of your local society that you are failing to attend? There shouldn't be. You owe it to yourself and to your clientele to attend every meeting and actively participate in its deliberations. While your society needs you, you need the society more.

Your 1914 dues are payable and must be in the hands of your County Secretary before April 1st to avoid having your name placed upon the suspended list.

The thyroid gland, in proportion to its size, receives twenty-eight times as much blood as the brain, and five and one half times as much blood as the kidneys.

The exposure made, by *The Journal of the A. M. A.*, of the methods employed by the Bennett Medical College of Chicago in providing by means of fraud for a matriculate's preliminary education credentials cannot be commended too highly. If there are any other medical colleges guilty of similar offenses we sincerely hope that they will be shown up in a like manner. Such investigations that bring to light existing "rottenness" in our medical schools, added to the work the A. M. A. is conducting in exposing medical fakers and quack nostrums, will cause every respecting member of the profession to express his unqualified approval and lend to this work his moral and material support.

This issue of THE JOURNAL is made possible by the patronage we receive from our advertisers—without this patronage we would be unable to send you such an issue as this. If you desire similar numbers to reach your desk each month it is incumbent upon you to confer your patronage upon these advertisers. Send them your next order—tell them why you are doing so. You owe this co-operation to them, to yourself and to your JOURNAL. Read these advertisements now and show these advertisers that you appreciate their employing advertising space in your JOURNAL.

A pathological condition of the appendix may justly be considered as a causative factor of many reflex symptoms. However, to construe a diseased appendix as the sole and only cause of these reflex disturbances is a danger to be avoided. He who causes his patients to submit to an appendectomy and accomplishes its removal through a "button-hole" incision is not affording that patient the full benefits of the operation. A little larger incision so as to permit an intra-abdominal examination may reveal other conditions that require surgical interference before normal function can be restored. Coexistent with appendical disease there may be a Lane kink, adhesion of the ilium, gall-bladder disease, gastric or duodenal ulcer, or a diverticulum—all surgical conditions which will demand secondary operation if not attended to at the time of the appendectomy.

Deaths

DR. JOHN AVERY.

Dr. John Avery of Greenville died on Jan. 17th, 1914, at the age of 89. He had been president of the Montcalm County Medical Society for several years, but failing in health he was made an honorary member of his County Society as well as of the Michigan State Medical Society. The cause of death was senility.

Correspondence

Hillsdale, Feb. 14, 1914.

Dr. Frederick C. Warnshuis,
Grand Rapids, Mich.

My dear Dr. Warnshuis:—

I cannot refrain from offering a word of congratulation, and commendation of your work with the JOURNAL. You have made it a splendid exponent of the profession in Michigan. I know of no state Journal that is its equal. My interest in the advancement of the interests of our body is such that the success of your work gives me the greatest pleasure. We are fortunate in your editorship.

With kindest regards and best wishes, I am,

Yours cordially,

WALTER H. SAWYER.

State News Notes

Dr. A. M. Campbell of Grand Rapids will leave for Europe during the early part of March.

Dr. A. S. Warthin of the Medical Department of the University, delivered a lecture on Sex Hygiene before the Grand Rapids Y. M. C. A. on Feb. 15th.

Dr. C. C. Fernstamacher and wife of Dowagiac have been seriously ill with diphtheria.

Dr. R. E. Balch of Kalamazoo is spending a couple of months vacation in the southern states.

Dr. J. Earl McIntyre of Lansing was appointed to succeed himself as county physician of Ingham County.

Dr. W. B. Sprague of Palmyra, sustained severe and painful injuries to his face when he slipped and fell under his horse.

Dr. Margaret A. Osborn, mother of former Governor Chase S. Osborn of the Soo, died at her home in South Bend, Ind.

By action of the state board of Registration, Dr. C. J. Kennedy of Detroit has been debarred from practice.

Dr. Russell Boggs of Pittsburg addressed the Grand Rapids Academy of Medicine on Jan. 22nd. His paper was entitled; The Modern Trend in the Treatment of Malignancy.

The State Homeopathic Society will hold its annual meeting in Saginaw on May 12th and 13th.

Dr. Theodore Kolvoord of East Ross has located in Urbandale.

Dr. De-Witt-Carter Adams and Miss Helen B. Brooks of Detroit were married on Jan. 24th.

The next annual meeting of the Michigan Society for the Prevention of Tuberculosis will be held in Muskegon during the first week of October.

Dr. L. H. Chamberlain of Grand Rapids departed for Europe on March 3rd.

Dr. J. W. Vaughan of Detroit has tendered his resignation as Secretary of the surgical section of the State Society. President Kiefer has appointed Dr. E. J. O'Brien, 420 Woodward Ave., Detroit, as the new Secretary of this section.

In our last issue we stated that: "Dr. A. Paterson of Flint was convicted by a jury for being a party to a criminal abortion." It so happens that there are two Dr. Patersons in Flint, both of whom have the initial A. One is a member of the Genesee Society and other is not. In justice to Dr. A. A. Patterson it is but proper that this explanation be made.

Medical Inspector W. C. Braisted, who has just been appointed by Secretary Daniels to be surgeon general of the navy, began his eminently successful career in Washtenaw county.

His father was auditor for the Michigan Central and resided at Ypsilanti. In 1882 Dr. Braisted graduated from the literary department of the U. of M. and later studied medicine and surgery at the Col-

lege of Physicians and Surgeons in New York. For a time he practiced as a surgeon in Detroit, and in 1890 he passed the examination that took him into the navy. Dr. Braisted made a report on the operations of the Russian and Japanese forces in the field at Manchuria which was highly commended by experts. He has been president of the Military Surgeons' Medical association.

Board of Health, Ishpeming, Mich.

Gentlemen: The sample of water received Jan. 24 has been examined bacteriologically with the following results:

Bacteria per cc. at room temp.None
Bacteria per cc. at incubator temp.None
Presumptive test for B. Coli gas production
on Lactose B.
25 ccNone
1 ccNone
AcidityNone
TurbidityNone
Indol productionNone
Red colonies on L. L. A.None
B. ColiNone
Potability Safe
This sample of water appears to be sterile and is entirely safe for drinking purposes.

Very truly yours,
M. L. HOLM,
State Bacteriologist.

Good Health Week for Hillsdale is being arranged for, and the week commencing March 15 has been selected as a tentative date. This was decided upon at a meeting which was held in Dr. W. H. Sawyer's office, with interests of the city represented. The "Good Health Week" will consist of a comprehensive exhibit relating to preventable diseases, proper care of children, pure foods, hygiene and sanitation and also a series of lectures on various phases of good health.

An organization was perfected, and officers were elected as follows:

- President—Rev. C. S. Wheeler.
- Secretary—Dr. B. F. Green.
- The week of March 15 was selected, depending upon what arrangements could be made for exhibits and speakers.
- The following committee were appointed:
Executive committee—Dr. W. H. Sawyer, Dr. Bion Whelan, Supt. S. J. Gier, Rev. W. F. Jerome, Dr. B. F. Green.
- Exhibit committee—Dr. Bion Whelan, Dr. C. S. Bower.
- Program committee—Dr. W. H. Sawyer, Pres. J. W. Mauck, Mayor L. A. Goodrich.
- Arrangements committee—Supt. S. J. Gier, Mrs. Alexander Stock, Mrs. B. C. McMillan, F. P. Knapp, Mrs. Sawyer, Mrs. Griffith and Mrs. Bower.

Within the next two months, the capacity of the University Hospital will be increased by 74 beds distributed as follows:

Palmer Ward for Children (additional) 35 beds
New Contagious Hospital24 beds
Medical Pavilion, (Medical, Neurologic,
and Dermatologic Services) additional15 beds
Total number of beds in the Hospital 374.

RADIUM CHLORIDE.—Radium chloride is supplied in the form of a mixture of radium chloride and barium chloride, and is sold on the basis of its radium content. Radium Chloride-Standard Chemical Co., Radium Chemical, Pittsburg, Pa.

County Secretaries Department

We earnestly urge that every County Secretary carefully read the following article and at once comply with the request therein contained.

"By virtue of your office as Secretary of the County Medical Society you are a member of the Association of the County Secretaries of the Michigan State Medical Society. We had a very enthusiastic meeting at Flint, but I believe we can have a better meeting in September if every member of this Association will lend a hand. There are sixty members of this Association. The problems that each one has to face vary more or less in each locality. To overcome these problems you have worked out certain schemes. Each County Secretary studies each respective society from a different view point and as a result of the difficulties that trouble us we wonder what the other fellow is doing to overcome them.

"You would be doing me a great favor if you would kindly answer the three following questions at an early date.

- "1. Would you not present a paper before this session upon some phase of your work in which you are particularly interested?
- "2. What are the problems that have troubled you most?
- "3. What phase of secretarial work would you like discussed at the next meeting of the Secretaries' Association?

"Detailed answers would be greatly appreciated."

This is a copy of a letter recently mailed by the Secretary of the County Secretaries' Association of the Michigan State Medical Society. From the sixty letters mailed four answers were received. From the demonstration of interest one would justly believe there are about fifty-five Secretaries that were sleeping on their job, or on a vacation; but this is not a correct conclusion because a great many of the County Societies are having programs prepared by their respective Secretaries from the reports in JOURNAL. We appreciate fully that County Secretaries are a busy group, in part looking after their Medical Society, and in part struggling for maintenance, and in keeping up with progressive medicine. Aggressiveness in the attack of new problems should characterize the activity of the County Secretary. However, facts are prevalent that laymen have consulted the County Secretary of the local society to marshall the medical forces in a co-operative fight against tuberculosis; but that the Secretary manifested only a lukewarm interest in this country-wide propaganda.

Certainly the Secretary is the one man in the community that can unify medical and lay forces on any sociological problem. Medicine

has more sociological influence and can give greater organized aid now than ever before. There are sects in public life that stand ready to combat any sociological aggressiveness of medical science and put forth a strenuous effort to disseminate a fear that the medical man in particular and the profession in general will become autocratic. Can you imagine anyone that has an innate desire to serve humanity to the point of self sacrifice becoming autocratic? When the public invites us to aid them we should jump at the opportunity, make good and demonstrate our desire to lend a hand, and that we are at all times friends of the public. When we desire medical legislation we must have lay friends to help us. The County Secretary must not only look after the routine, but interest the public in medical progress and make them feel that our problems are frequently their problems as well.

Will every Secretary that has not answered please answer the appended questions now and add your quota of interest in helping on this program.

"Then, welcome each rebuff.

That turns earth's smoothness rough,

Each sting that bids nor sit nor stand but go!"

—*Bacon.*

CLARKE B. FULKERSON.

Secretary-Secretaries Association.

Kindly see that we receive all the dues that you have collected before April 1st in order that your members be not unjustly classified as suspended.

Have you any problems that are confronting you and preventing your society from realizing all the benefits of organization? If so, we wish you would discuss them in these columns and thus obtain the advice and assistance of all County Secretaries.

County Society News

EATON COUNTY

The Eaton County Medical Society met in Charlotte Jan. 29th, 1914, with a good attendance.

Dr. H. C. Rockwell of Dimondale gave a report of a case of Elephantiasis, with photographs.

Dr. Howard H. Cummings of Ann Arbor read a paper on Human Blood Therapy. Both papers were freely discussed. Dr. Cumming's paper was interesting, instructive and practical.

C. H. SACKER, SECRETARY.

GENESEE COUNTY

The regular monthly meeting of the Genesee County Medical Society was held December 16th, 1913.

Dr. Francis Duffield of Detroit read a paper entitled "The Complications of Broncho-Pneumonia

in Children." The discussion was opened by Drs. Miner and Jickling.

A paper on "Tuberculosis of the Female Genitalia" was read by Dr. F. E. Reeder. The discussion was opened by Dr. Manwaring.

On January 6th the first January meeting was held. Dr. A. P. Ohlmacher of Detroit was present and read a paper on "Vaccine Therapy in the Light of the Recent Developments."

Following this paper Dr. W. M. Clift read a paper on "Food Disturbances in Infancy."

The regular quarterly meeting was held January 27th, 1914.

Following the business meeting Dr. Randall of Flint read a paper entitled "Diagnosis of Diseases of the Stomach." Discussed by Dr. Chapel.

Dr. Klingmann of Ann Arbor then read a paper entitled "Syphilis of the Nervous System." The discussion was opened by Dr. Manwaring.

The Genesee County Medical Society are now publishing a bulletin, which contains the programs of the coming meetings a report of the papers that are read at the meetings, and any action that may be taken by the society. The Secretary will be glad to exchange Bulletins with any other County Society.

R. D. SCOTT, SECRETARY.

KALAMAZOO ACADEMY

Tuesday, February 10, 1914, 1:30 p. m.

1. Experiences in Surgery of the Nervous System (Illustrated with Lantern Slides). Dr. Max Ballin, Detroit, Mich.

Discussion—Dr. O. H. Clark, Dr. C. E. Boys, Dr. R. E. Balch.

2. Roentgen Rays in Diagnosis (Illustrated with Lantern Slides.) Dr. I. H. Levy, Syracuse, N. Y.

Discussion—Dr. A. W. Crane, Dr. A. L. Robinson, Dr. H. O. Statler, Dr. P. T. Butler.

Tuesday, February 10, 1914, 1:30 p. m.

1. The Roentgen Evidences of Intestinal Stasis, with Special Reference to Ileal Stasis. Dr. J. T. Case, Battle Creek, Mich.

2. The Roentgen Examination of the Head. Dr. P. M. Hickey, Detroit.

The papers of Dr. Case and Dr. Hickey were discussed by Drs. Henry Hulst of Grand Rapids, A. W. Crane, L. H. Stewart, A. S. Youngs, O. H. Clark and A. H. Rockwell.

Minutes of the last meeting of the Academy, January 27, 1914.

Dr. J. E. Maxwell being absent the first Vice-President, Dr. E. R. Swift, acted as chairman. Minutes of the annual meeting were read and approved. Dr. A. H. Rockwell wished inserted in motion for seventy-five dollars to be diverted to Library fund, the following: "If funds in treasury permitted."

Dr. A. W. Stone presented the applications of the following for associate membership: W. A. Royer, Mendon; F. A. Pratt, Centerville; David M. Kane, Fred. W. Robinson, Sturgis.

For full membership: Grant Ide, Mattawan; Edward O. Hanlon, Wayland; John R. Giffin, Bangor; D. W. Crankshaw, Lawrence; Harlon S. Smith, Schoolcraft; John T. Chapin, Schoolcraft; Edward Murray Auer, Kalamazoo; Rob. R. Lawrence, Hartford; James Edward Bryan, Wayland; Olin H. Stuck, Otsego; Howard E. Whitney, Otsego; Leander T. Van Horn, Otsego; Edwin G. Low, Bangor. J. C. Maxwell moved that J. T. Upjohn be elected to membership in the Academy. Carried.

Report of Dr. A. H. Rockwell.

The meeting of the Council of the Michigan State

Medical Society was held in Detroit, January 21, 1914. Dr. A. H. Rockwell represented the fourth district. He reported that the STATE JOURNAL gave a very good financial report. As a Medical Periodical we all know the good reputation that it is building up for itself. Dr. W. T. Doge and Dr. A. W. Hume are members of the Council as well as of the Medical Registration Board. They are very willing to support the medical societies in the prosecution of itinerant quacks who appear and disappear with remarkable rapidity. United action by local and state organizations is indispensable for the suppression of these medical criminals.

KENT COUNTY

A special Clinic and meeting was held by the Kent County Medical Society on Feb. 4th, with Dr. F. H. Albee the invited guest.

The clinic was held at the U. B. A. Hospital where about twenty cases were demonstrated, four of which were operated upon.

The operations were as follows:

Case 1—Pt. or Dr. R. Apted. Sections of spinous processes of 10-11-12 Dorsal and 1st Lumbar Vertebrae with transplantation of bone from tibia for Pott's Disease. Albee Operation.

Case 2.—Pt. of Dr. DeVries. Splicing of scaphoid and bone graft from tibia, and tenotomy, for talipes equina varus.

Case 3—Pt. of Dr. Tibbitts. Resection of sarcoma involving upper one-third of tibia, and transplantation of longitudinal section from sound tibia to fill in the space between ends of sectional tibia.

Case 4—Pt. of Dr. Irwin. Open tenotomy of spastic paralysis resulting in talipes equino. Union of ends of severed tendon with heavy kangaroo tendon.

On account of the lateness of the hour it was impossible to carry out the entire program. Among the cases presented for operation were the following:

- I Pott's Disease. Dr. VandenBerg.
- I Spinal Paralysis. Dr. Rooks.
- I Volkman's Contracture. Dr. McBride.
- I Ununited fracture of jaw. Dr. Fabian.
- I Paraplegia. Dr. John Wenger.
- I Infantile Paralysis-Equino Varus. Dr. Fabian.
- I Infantile Paralysis. Dr. A. M. Campbell.
- I Hip joint, Tubercular. Dr. A. M. Campbell.
- I Infantile Paralysis, Equino Varus. Dr. Montgomery.
- I Scoliosis. Dr. Irwin.
- I Hypopituitarism. Dr. V. M. Moore.

About 70 visitors were present at the clinic. Among those from out of the city were the following: Dr. H. Randall, Flint; Dr. F. H. Shorts, Kent City; Dr. J. T. Cramer, Muskegon; Dr. J. Drummond, Casnovia; Dr. R. M. J. Hotvedt, Muskegon; Dr. J. T. McGuffin, Hastings; Dr. J. F. Pinkham, Belding; Dr. J. D. Whelpley, Howard City; Dr. C. H. Anderson, Lowell.

Following the clinic, the visitors were invited to a luncheon given at the Association of Commerce rooms in honor of Dr. Albee at which time he read a paper "Original Surgical Uses of the Bone Graft. A Report of 225 Cases." The paper was extensively illustrated by means of lantern slides.

The regular meeting of the Kent County Medical Society was held on Feb. 11 at the Association of Commerce rooms. Dr. A. M. Campbell presiding.

The following names having been submitted to the Board of Directors for membership, were favorably reported, and duly elected members of the society.

- Dr. A. C. Butterfield.
- Dr. G. J. Stuart.
- Dr. E. B. Strong.

Dr. J. E. Bolander.

Dr. E. S. Sevensma.

On motion of Dr. Spencer, supported by Dr. Warnshuis, the Society considered favorably the proposal that the Society become a member of the Association of Commerce and that the President and Secretary represent it.

Dr. O. E. Herrick was made an Honorary member of the Kent County Medical Society and his name proposed for Honorary membership to the Michigan State Medical Society.

The paper of the evening was given by Dr. B. R. Corbus, his subject being "Gastro-Enterology and Some of Its Problems."

The paper was freely discussed by Dr. H. J. VandenBerg, Dr. C. H. Johnston, and Dr. F. C. Warnshuis. Dr. VandenBerg presented case of metastatic carcinoma involving the liver. Adjourned.

J. J. FABIAN, SECRETARY.

MUSKEGON COUNTY

On December 5th, 1913, the Muskegon County Medical Society held a very successful meeting at Hackley Hospital, Muskegon. Dr. Daniel LaFerte of Detroit attended the meeting and gave a very interesting talk on "Joint Affections," twelve orthopedic cases being demonstrated. The meeting was a most successful one, and the Society feels grateful to Dr. LaFerte for his kindness in coming such a distance and giving up so much of his valuable time. There was an attendance of twenty-five, several outside members being present.

As no business was transacted at the December meeting the annual meeting was held January 2, 1914, sixteen members being present. The election of officers was as follows:

- President—Dr. Jacob Oosting, Muskegon.
- Vice President—Dr. Geo. F. Lamb, Pentwater.
- Secretary—Dr. J. T. Cramer, Muskegon.
- Treasurer—Dr. L. N. Eames, Muskegon.
- Delegate—Dr. V. A. Chapman, Muskegon.
- Alternate—Dr. F. B. Marshall, Muskegon.
- Director—(3 yrs) Dr. I. M. J. Hotvedt, Muskegon.
- Medico-Legal—Dr. P. A. Quick, Muskegon.

At a meeting held January 30, 1914, a paper was read by Dr. R. C. Stone of Battle Creek on "Diagnosis and Surgery of Gastric Ulcer." The medical treatment was discussed by Dr. J. J. Toles of Battle Creek. Dr. F. B. Marshall of Muskegon read a paper on "Duodenal Ulcers." This proved to be a very interesting meeting, and there was a good attendance.

J. T. CRAMER, SECRETARY.

SAGINAW COUNTY

The regular monthly meeting of the Saginaw County Medical Society was held at the City Hall Jan. 26th, 1914, with about thirty in attendance.

A paper on "Nephritis" was given by Dr. J. H. Powers of Saginaw, and a paper on "Treatment of Some Common Cardiac Irregularities" by Dr. Hugo A. Freund of Detroit. Dr. Freund also demonstrated a patient with aneurism. Mr. W. T. Singer, of Chicago, representing the American Medical Association, gave an interesting paper on the work of the Association.

Dr. A. L. Seeley of Mayville was present and talked on the work of the State Society. Several new members were elected.

A. R. McKINNEY, SECRETARY.

SANILAC COUNTY

The thirteenth Annual Meeting of the Sanilac County Medical Society was held at the Court House, Sandusky, Mich. on Monday, the 26th of January, 1914, for the purpose of electing

officers for 1914 and other business. The following officers were elected.

President—C. G. Robertson, Sandusky.

Vice President—E. Y. Partello, Applegate.

Secretary-Treasurer—J. W. Scott, Sandusky.

Delegate—Geo. S. Tweedie, Sandusky.

Alternate—J. W. Scott, Sandusky.

Medico Legal Com.—D. D. McNaughton, Argyle.

J. W. SCOTT, SECRETARY.

SOUTHWESTERN MICHIGAN TRIOLOGICAL ASSOCIATION

Fourth stated meeting Feb. 2, 1914, Dr. E. J. Bernstein, President in the Chair.

The fourth regular meeting of the Southwestern Michigan Triological Association was held in Grand Rapids, February 2nd; Dr. E. J. Bernstein of Kalamazoo, the president in the chair. Dr. P. T. Urquhart, Grand Rapids, presented five cases of injury to the eye, giving history of cases and presenting the patients for examination.

Dr. Ferris N. Smith of Grand Rapids read a paper on "Lues of the Ear and its Treatment," which on account of its great value and because of the dearth of literature on this subject, we are abstracting at length:

"The experiments resulting in the production of Arsecetin and Salvarsan, the data accumulated in the use of these drugs and coincident development of a new technic in examining the labyrinth have entirely revolutionized our diagnosis and treatment of lues of the internal ear.

The common lesion of the middle ear occurs during the secondary stage and usually manifests itself as a catarrhal or suppurative otitis and may be dependent solely upon tubal obstruction and secondary infection with no local specific etiology.

The frequency of syphilis as an etiological factor in lesions of the nerve of hearing from its origin to its internal filaments in the cochlea and labyrinth demand our most careful attention. Obviously, primary lesions do not occur in this region. The disease may be part of a general condition or it may involve the internal ear alone. However, it generally manifests itself during the late secondary stage of early tertiary stage. Again, ear lesions may be the only manifestations of the return of former symptoms in a treated case. The symptoms chiefly those of any internal ear involvement with certain prodromes and sequelae which characterize the condition. No symptom is pathognomonic.

Those symptoms which arouse our suspicion and build our diagnosis are periodic, sudden, sharp pains in an objectively negative ear with paresthesias of the auricle and canal; dull deep bone pains which are worse toward midnight; redness and tenderness over the mastoid with a normal ear; staggering; transitory asphasias, reduced bone conduction with a negative fork test; reduced reaction of the labyrinthine nerve; and unreacting labyrinth; destruction of the cochlear or labyrinthine nerve alone; marked differences between spoken and whispered voice; a facial paralysis with a destroyed cochlear nerve; and an apparently idiopathic palsy. Sudden deafness in children without injury is due to congenital lues and sudden deafness in young adults is almost always certain to be specific. If a patient comes complaining of periodic sudden sharp pains in a negative ear which go quickly and he has paresthesia of the external ear, it is only necessary to differentiate Arteriosclerosis to diagnose an approaching Tabes or General Paresis. Bone pains and tenderness over the mastoid with a negative ear which are more marked in the evening are strongly suspicious but must be differentiated from a mastoid due to encapsulated organisms such as Friedlander's *Diplococcus Pneumoniae*, *Streptomucoccus*, Schattmuller's bacillus and the Meningococcus, from beginning erysipelas and rheumatism. Oscar Beck claims that 85% of all cases of reduced bone conduction with the normal hearing are specific. This sign appears with the general symptoms and always persists. Certain cases in which the patient has a side to side stagger, a spontaneous horizontal nystagmus stronger to one side than the other and a negative labyrinth are specific of the central type and often simulate tumors of the posterior fossa.

In cases where the labyrinth reacts slowly and the reaction is shortened in time after turning or irrigation, we are dealing with sclerosis of the nerve which may be specific, and where there is no reaction to turning, caloric or electrical irritation we are dealing with a nuclear lesion which is not infrequently specific. A facial paralysis with a destroyed cochlear nerve speaks for a lesion in the cerebello-pontile angle and this is a predilection spot for gummatous.

If the patient has had no acute fever or drug nor engages in any occupation causing deafness and yet appears with an isolated lesion of the cochlear or labyrinthine nerve on one side or the other, syphilis may be diagnosed. Marked

differences in the hearing of spoken and whispered voice speaks strongly for syphilis.

One does not always find a positive Wasserman test in cases of labyrinthine syphilis. This is probably due to the fact that the ear organ is very sensitive and easily affected by a change not sufficiently great to change a negative to a positive Wasserman. Puncture gives much evidence but is dangerous in these cases because of the blood vessel conditions which lead to rupture or to Edema following the release of pressure.

If we irrigate both labyrinths of a syphilitic at the same time, there is no reaction. Likewise there is no difference noted upon turning but the galvanic test does show nerve differences. Hence the trouble is in the nerve. Therefore, patients with spontaneous horizontal nystagmus and no difference in the labyrinth have lesions in the posterior fossa while those with spontaneous rotary nystagmus and electrical differences have nerve lesions. A differential diagnosis must be made from hemorrhage, lesions from drugs and fevers, arterio-sclerosis, oto-sclerosis, Meniere's, brain tumor, so called idiopathic mastoids, early erysipelas, rheumatism and shortened bone connection occurring in other conditions.

The prognosis in cases of inherited lues is very unfavorable as to ear lesions. These are probably never influenced by specific treatment but remissions may occur either coincident with or without it. Hearing defects, especially those due to minor ear lesions, last much longer than the general evidence of the disease. Recently acquired syphilis has a favorable prognosis as to hearing, station and noises under proper treatment but old untreated cases in debilitated subjects progress in spite of any treatment. The outlook in meta-luetic cases, such as Tabes and General Paresis, is very poor because nerve degeneration is already started. In secondary cases the outlook is very favorable under proper treatment.

The choice of a proper treatment of syphilis with ear involvement is only second in importance to diagnosis. We must choose a treatment which will be effective against the disease, at the same time not so strongly active as to permanently damage the cranial nerves which run in bony canals. We have a choice of mercury in the form of (1) inunctions; (2) insoluble preparations; (3) soluble preparations; (4) and Salvarsan. The first never produces any local reaction; the second occasionally does; the third frequently does when used in big doses; and 606 very frequently produces marked reaction, the effects of which appear as deafness, disturbed equilibrium and facial palsy.

Let us first consider congenital lues. This condition is not altered by mercury nor 606. Spontaneous remissions may coincide with the treatment but do not result from it. A better procedure is the use of pilocarpine. This will give relief for one or two months at a time in young patients.

We must constantly bear in mind that "606" has a toxic selection for the vestibular nerve and that only five cases of vestibular destruction were in the literature before its use whereas they are now reported by the dozens.

In the discussion Dr. Roller Grand Rapids reported numerous cases of sudden deafness in children suffering from Interstitial Keratitis. The deafness in these children did not clear up with the improvement of the eye conditions. Dr. Bernstein of Kalamazoo reported a case of administration of Salvarsan with the production of deafness and commented upon the fact that the literature has urged an examination of the eyes before the administration of Salvarsan but has said very little about previous examination of the ears. Dr. Urquhart, Grand Rapids, has never seen any ill results in the eyes from the use of Salvarsan in over one hundred cases examined after administration. Dr. Welsh of Grand Rapids reported two cases of total deafness following the use of Salvarsan, one of which cleared up to quite an extent after repeated injections. He cited Beck's suggestion to give repeated injections if deafness has followed the first injection, and states that after the third injection the hearing is frequently restored. Dr. Smith in closing urged that since Salvarsan has a special predilection to vestibular destruction the function of the vestibule should be determined before injection and if there is much reduction of function, Salvarsan be either not given or given in small repeated doses.

Dr. Smith also reported a case of repeated spontaneous nasal hemorrhage occurring both before and eight days after turbinectomy in a case of Basedow's disease. He succeeded finally in seeing the patient during one of these hemorrhages which was simply a very free oozing of blood. The coagulation time was fifteen minutes. After a few administrations of calcium chloride the coagulation time

was reduced to seven minutes since which time there has been no hemorrhage.

The five cases of concussion of the eye reported by Dr. Urquhart with the presentation of the patient are briefly outlined:

Case I. Man struck in eye by a block of wood January 22, 1914. Since then he has great pain in the eye with blurred vision. The eye became decidedly worse January 24. Conjunctiva red; pupil dilated with atropine; media clear; serious retinitis; retina hazy and edematous. Vision 20/40+. This is a case of *nemmotio retinae* which will undoubtedly clear up in a few days or weeks.

Case II. Man hurt January 23, struck in eye by block of wood, no pain for one hour, after which the eye became very painful. In this case there is no evidence of retinitis, but there is a detachment of a piece of uveal tissue which has become attached to the lens and is seen as a dark pigment piece the shape of a broom. There are also striations of opacity in the lens arranged around the equator and radiating from the center like spokes of a wheel. The vision is not impaired.

Case III. Right eye struck by piece of wire four inches long November 15, 1913. The eye was very sore for three or four days. First seen by Dr. Urquhart December 13, when he presented a clear case of serious retinitis. The outlines of the disc were hazy and indistinct and there were several punctate hemorrhage spots in retina. He says he cannot see at all, but on reading tests, shows vision of 20/100, but says everything is extremely hazy. On January 31, I found the serious retinitis to be much improved. The vessels clearly cut, and disc distinct. However there are several good sized white spots in the fundus which appear to be at the exact location where before had existed the hemorrhages. There are two large and distinct spots in Macula. There have been retinal and choroidal degeneration at these spots, and I believe his great loss of central vision due to thinning and atrophy of macular bundle.

Case IV. This man was struck in eye by block of wood about December 1st. The media was clear, but there was seen a large flame shaped hemorrhage in retina and completely covering the macula. We now see a degenerated retina and choroid at this point looking like a macular hole. In addition to this interesting point we find a beautiful Retinitis Circinata completely encircling the macula and showing the characteristic passover bread appearance. In this case the man asserts he saw perfectly well before the accident. There was undoubtedly a first hemorrhage at this time. An eye with Retinitis Circinata is liable to hemorrhage at any time, but in this I feel sure that the hemorrhage was due to atrophy following upon hemorrhage.

Case V. Struck in eye by flying emery wheel. Incised wound in cornea back of pupillary margin. Iris attached to angle of wound. This occurred January 1913. I have not seen him before yesterday. There is a line of fracture in the capsule of the lens which shows as a whitish elliptical ring. It looks almost like a dislocation. The lens is completely filled with opaque bodies. The ciliary body was torn, and a long ciliary tag runs to lens and is attached thereto. The fundus can not be seen. Vision completely lost. Text books say very little about concussion of the eye. It is a common accident, and one which leaves no external signs. The eye may become reddened and even painful for a short time, but severe retinal injury and shock as well as actual hemorrhage and tearing may exist without external evidences of the grave nature of the lesion. These five cases are all of concussion of the eye. In but one was there any external evidence of injury, and in this case the tear in the cornea probably had little to do with the shock to the eye.

In the discussion Dr. Roller emphasized the necessity of extreme care in the examinations of all injured eyes and especially urged that we be on the lookout for malingerers especially in view of the employers liability act. Dr. Rogers saw Case III soon after the injury when the "degenerative points" had about the same appearance that they do now, and he believes there had not been sufficient time since the accident for all the degeneration to take place. Dr. Welsh cautioned extreme conservatism in stating how such loss of function was due to any past injury, as we do not know the condition of the eye before the injury. Dr. Chapman believes the round spots or holes in Case III could not be the result of tears either by contra-coup or by any other force as the edges are too perfectly smooth and the holes too round. He suggested that in view of our employers liability act, employers are very careful about the efficiency of their machines, factories etc., but are careless about the efficiency of their men. He believes all employers of men wherever there is any liability to accident involving the special senses, should know the physical condition of their men relative to the organs of special

senses, as a condition of employment. Dr. Haughey believed the holes or spots in the retina and choroid of Case III, were probably present before the accident and with Dr. Chapman could not see why this man should not have better vision. The two spots in the macular region are small and do not necessarily interfere with central vision.

The next meeting will be held in Kalamazoo, March 2nd.

WILFRID HAUGHEY, SECRETARY.

MEMBERS

Kalamazoo—Edward J. Bernstein, E. P. Wilbur, F. E. Grant.

Battle Creek—Raymond D. Sleight, Wm. M. Carling, Penton N. Colver, Wilfrid Haughey, H. M. Dunlap.

Jackson—G. E. Winter, A. E. Bulson, G. A. Bulson, H. D. Obert, Flemming Carrow.

Grand Rapids—John R. Rogers, D. Emmet Welsh, Louis A. Roller, E. W. E. Patterson, R. T. Urquhart, Ferris N. Smith, J. W. Shank.

Flint—W. G. Bird.

Muskegon—V. A. Chapman, W. P. Gamber, A. F. Harrington.

February 2, 1914.

ST. JOSEPH COUNTY

The St. Joseph County Medical Society met in the East room of the library at Sturgis Jan. 22, 1914, at 1 P. M., the annual meeting.

In the absence of Dr. R. E. Dean, President, and Dr. W. C. Cameron, Vice President, Dr. J. H. Moe was asked to preside.

Dr. A. A. Wade read a carefully prepared paper on "Ulceration of the Stomach," one full of interest and instructions. The paper was discussed by those present. Dr. Fulkerson reported a case of interest along the same line.

The election of officers resulted as follows:

President—R. E. Dean, Three Rivers.

Vice President—W. C. Cameron, White Pigeon.

Secretary-Treasurer—S. R. Robinson, Sturgis.

Delegate—J. H. Moe, Sturgis.

Alternate—D. V. Runyan, Sturgis.

Medico Legal—F. W. Robinson, Sturgis.

Censors—M. Saben, Centerville; W. A. Royer, Mendon; D. V. Runyan, Sturgis.

Doctors D. K. Anderson, G. L. Bliss and G. E. Barninger were elected to membership.

Dr. Fulkerson was very enthusiastic over the possibilities of the Academy of Medicine and what it offers its members. S. R. ROBINSON, SECRETARY.

WAYNE COUNTY

PROGRAM

Monday, Jan. 26—Historical evening. Vesalius: Fourth Centenary. Dr. W. J. Stapleton, Jr.

Galen and His Times. Dr. Carl McLelland.

A Plea for the Study of Medical History. Dr. J. H. Dempster.

Monday, Feb. 2—General Meeting, "Original Uses of the Bone Graft. A report of 225 Cases." Illustrated by the Lantern. Fred H. Albee, New York City.

Monday, Feb. 9—Dedication Night.

Monday, Feb. 9—House Warming.

Vaudeville—Smoker, etc.

Monday, Feb. 16—General Meeting.

Some studies on—

a. The relation of oral to systemic infection.

b. Tri-calcic salt nutrition.

c. The relation of the bones of the face to the functioning of the brain.

d. The mechanical recording of clinical data.

Weston A. Price, Cleveland, O.

Monday, Feb. 23—Surgical Section.

Practical points (of special interest to the general practitioner) in the treatment of diseases of the ear. Dr. J. M. Ingersoll, Cleveland, O.

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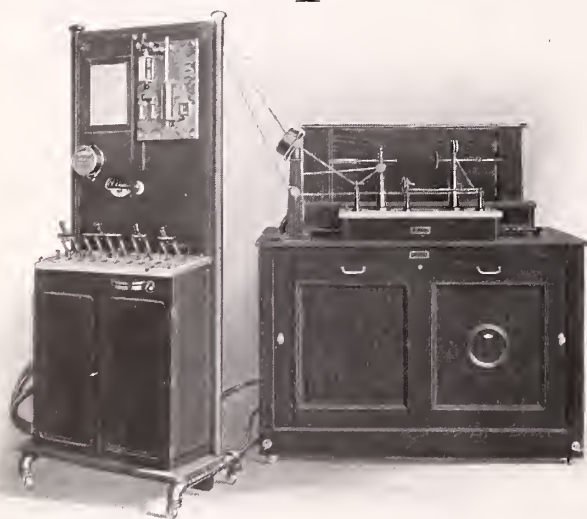
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The Journal

OF THE

Michigan State Medical Society

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No. 4

Original Articles

THE PRESENT STATUS OF THE SURGERY OF SYSTEMIC GOITRE. —ILLUSTRATIVE CASES.

WILLIAM SEAMAN BAINBRIDGE, A.M., Sc.D.,
M.D.

NEW YORK CITY.

DEFINITION.—The term "systemic goitre," which, so far as I am aware, has never been employed by others, seems to me to be the simplest and clearest definition of a clinical picture which is dominated by the exhibition of symptoms due to the introduction into the system of thyroid juices and toxins.

This symptom-complex, commonly known as exophthalmic goitre, Grave's disease, or Basedow's disease, may result from an increased amount of thyroid secretion (hyperthyroidism), or from the altered properties of the secretion (dysthyroidism). The entire organism is affected by the abnormal absorption of thyroid secretion. More or less marked enlargement of the thyroid gland is the usual concomitant of this condition, but this enlargement is not necessarily commensurate with the severity of the systemic symptoms.

Systemic goitre is to be differentiated from simple goitre in which, no matter how great the enlargement of the thyroid gland, there is an entire absence of thyreotoxic symptoms.

CASES AMENABLE TO NON-SURGICAL TREATMENT.

In a certain proportion of cases, when taken early, especially in young women, systemic goitre may be cured, or the patient restored to a fairly normal condition, by rest, topical applications of cold, the use of various sedatives, electricity, or serotherapeutic agents, notably Rogers' serum. It is not, however, the purpose of this communication to discuss the various non-surgical methods which have been suggested and employed in the treatment of this condition.

SYSTEMIC GOITRE A SURGICAL DISEASE.

Despite the fact that some cases yield to medical treatment, pronounced systemic goitre is considered, by consensus of present-day opinion, to be a surgical disease. It is not the intention to tax the reader's time and patience with a resumé of the various surgical procedures which have been tested and discarded.

Experienced modern operators are practically agreed in recommending early radical intervention in the treatment of the vast majority of systemic goitres. The choice of the method, or the modification of the procedure, must be governed by the type and size of the goitre, as well as by a series of other considerations.

It may be stated in passing that certain procedures have been largely discarded because of their perilous nature or imperfect results. Among these may be mentioned interventions on the cervical sympathetic nerve, injections into the gland, and total thyroidectomy.

SURGICAL PROCEDURES.

According to the requirements of the given case, the surgeon has at his disposal the methods of (1) *Partial Thyroidectomy, Strumectomy, Excision or Extirpation*; (2) *Intracapsular Enucleation* (of goitre nodules); (3) *Evacuation or Exenteration* (of goitre nodules); (4) *Resection*; (5) *Vascular Ligation*; (6) *Combined Procedures*.

The interventions which have stood the test of time, and which are now chiefly employed, are partial thyroidectomy and vascular ligation. The other procedures are very briefly considered.

INTRACAPSULAR ENUCLEATION.—Enucleation of the goitre nodules, from the more or less preserved thyroid tissue, according to Soein, is feasible in all encapsulated goitres. Unfortunately, the operation in many cases is impossible without severe hemorrhage. Results with regard to recurrence are as favorable after this procedure as after extirpation of the diseased half of the organ. Paralysis of the inferior laryngeal nerve may be avoided by proper care, and an existing paresis of this nerve has

been known to subside after intraglandular enucleation.

EVACUATION OR EXENTERATION of the goitre



Fig. I.—Case I. Condition before operation. Melancholia apparent in expression.

nodules, a procedure consisting in their incision and the removal of the contents, is very rarely indicated.

RESECTION of the goitre is performed especially in the presence of multiple nodules, or in parenchymatous goitre, when enucleation is not called for.

PARTIAL THYROIDECTOMY OR STRUMECTOMY.—Several methods of goitre extirpation or strumectomy are applicable to the diseased half of the thyroid gland, the other half being either entirely or largely healthy. In the majority of cases partial thyroidectomy is limited to the lobe of the gland which is seriously enlarged, usually the right. When it can be detached without undue difficulty, it is generally ablated in continuity with the extirpated lobe. Almost two-thirds of the goitre may be removed in this manner, without curtailing the thyroid parenchyma. Still more radical resections have their advocates, but there seems to be no real need for such extensive removal of thyroid tissue, as it is always possible, in case of recurrence, to resect the second lobe or to ligate the vessels.

Partial thyroidectomy is often simplified in systemic goitre, as compared with ordinary goitre, by the small volume of the tumor, which is rarely deep seated. However, adhesions with

neighboring structures are very common. The greatest danger consists in the the acute and often fatal disturbances which have been observed to follow immediately upon the operation, even when this is restricted to the very simple manipulations. Death from collapse has been known to occur within a few days or even hours, preceded by extreme tachycardia and violent excitement. Tetanic contractures are not observed, however, unless the operation has been very extensive. The pathogenesis of these symptoms has been referred either to a hyper-acute thyroid intoxication, in the course of the work upon the gland (thyreotoxic theory); or to a hyper-stimulation of the vasomotor and trophic nerves of the region (nervous theory).

Bérard pointed out that the first of these theories seems to be more correct, in view of the fact that the same disturbances in modified form have been known to follow in goitre cases after the thorough brushing and scrubbing of the cervical region in preparation for operation. This thyroid massage, according to Bérard, suffices for a toxic discharge into the circulation. The accuracy of this observation has been questioned by Berry, whose large experience with these cases does not confirm the efficiency of



Fig. II—Case I. One month after operation.

rough manipulation of the gland in the production of toxic symptoms.

Provided total extirpation is avoided in stru-

mectomy, and a sufficient portion of the thyroid gland is left behind, cachexia strumipriva, a condition due to the entire loss of the organ, is not observed to follow. Provided the part which has been left behind is capable of functioning, one-fourth of the gland, or one-half of one-half of the thyroid, seems to be entirely sufficient in this respect.

Garré was enabled to re-examine over twenty of his systemic goitre cases which had been operated upon more than five years previously, almost invariably by hemilateral extirpation. There were eighty-five per cent. of recoveries, with many great improvements, and sixteen per cent. of absolute cures. No improvement was noted in fifteen per cent., including three per cent. of deaths. One patient with an enlarged thymus died on the table under general anesthesia with ether. In contradistinction to the above results of surgical treatment, the mortality percentage of medical treatment amounted to twelve per cent. in moderately severe cases, reaching twenty-three per cent. in grave cases.

In the opinion of Kausch, bilateral wedge-shaped excision of the goitre, according to Mikulicz, is preferable to unilateral extirpation (Kocher's operation), mostly on account of the better safeguarding of the recurrent laryngeal nerve and the parathyroids. With special re-

moving such portions of the thyroid gland as seemed advisable, without paying any attention whatever to the parathyroids."



Fig. IV.—Case II. Three weeks after operation.

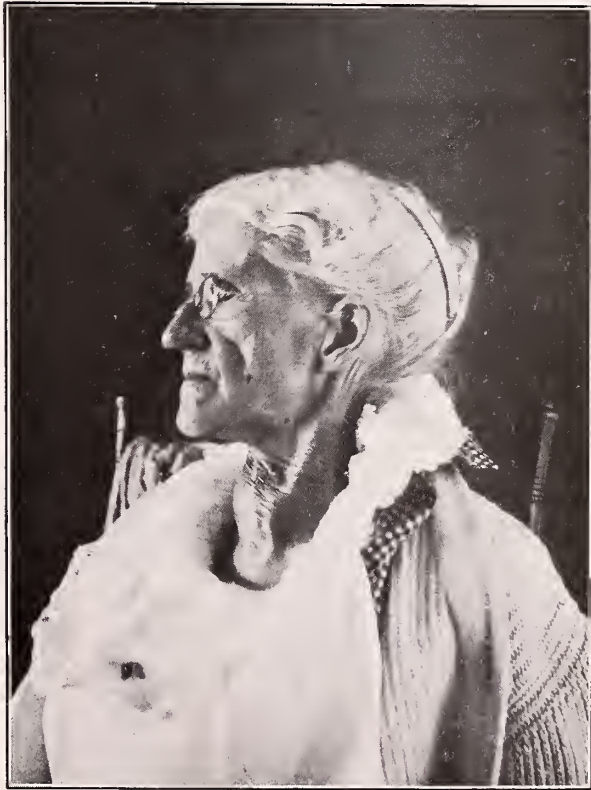


Fig. III.—Case II. Before operation, showing goitre.

As a preliminary step in partial thyroidectomy removal of the thymus gland is recommended by some surgeons. A close relationship between systemic goitre and the affections of the lymphatic system, known as pseudoleukemia and Mikulicz's disease, seems indicated by some of the modern investigations. This connection is suggested by certain histological changes in these goitres, and by the demonstration of a persistent thymus in about ninety per cent. of all operations for systemic goitre. Aside from confirmatory findings in experimental investigation, such a connection is indicated by the operative results obtained by Coenen, who secured marked improvement in a case of systemic goitre through the removal of the persistent thymus gland. Spijarny, who holds that a persistent thymus is found in eighty-two per cent. of the deaths from systemic goitre, considers this a contraindication to the operation. In patients who die after goitre operations, persistency of the thymus is noted in a very high percentage of cases.

There is thus a tendency to credit a persistent thymus with a considerable part in the pathogenesis of systemic goitre. It is important, therefore, that this factor be borne in mind in the treatment of the disease.

ference to the latter, it is noteworthy that Berry, who regards the parathyroid teaching as a myth, has been for many years "in the habit of re-

VASCULAR LIGATION.

Ligation of the superior and inferior thyroid arteries, on one or both sides, in one or several sessions, has been recommended in order to induce atrophy of the goitre, especially in the rapidly growing parenchymatous goitres of youthful individuals, or in cases of systemic goitre. Ligation is also used as a preliminary operation with the hope of improving the condition enough to allow a more radical operation at a later time. Kocher never ligates more than three thyroid arteries, on account of the danger of cachexia when the four arterial vessels are obliterated. The method of ligating several arteries in these cases was considered by its originator, Mikulicz, as a more difficult and dangerous operation than thyroidectomy. Aside from the danger of the intervention itself, the thyroid arteries must be tied at the same time, to insure maximum efficiency: for, instead of being terminal vessels, these arteries freely communicate through anastomosis between themselves, and through collateral circulation with the arteries of the vicinity.

In severe cases of systemic goitre, successive ligation of first one and then another artery



Fig. V.—Case II. One and a half years after operation.

may be applied under local anesthesia. Being more accessible, and not related to any important nerves, the superior thyroid arteries are usually selected for the ligation. According to

Berry's observations, the inferior is nearly always a much larger vessel than the superior thyroid. Ligation of the inferior thyroid is a

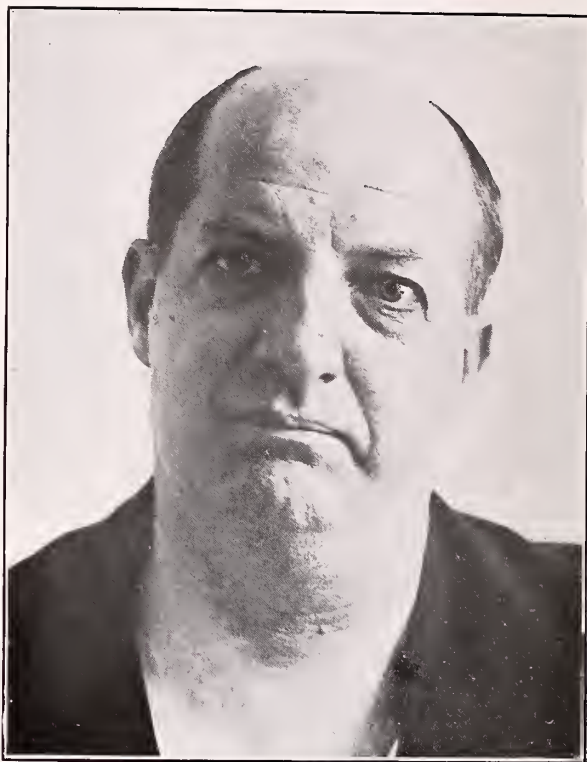


Fig. VI.—Case III. Before operation.

very difficult and rather severe procedure, which should be reserved for special cases. The place of selection for the ligature is directly internal to the point where the thyroid artery crosses the common carotid. The ligature is applied flush with the carotid, at a distance from the gland, and therefore from the recurrent nerve. The chief difficulty is referable to the chronic inflammation of the tissues surrounding the goitre.

Ligation of one or more arteries acts, in the opinion of Bérard, not only by cutting off the nutritional supply of the gland, but undoubtedly also by affecting the metabolism through the exposure, sketching, and tying of the concomitant nerves of the vessels. The goitre is rarely large enough to interfere with the exposure of the arteries.

Successive ligatures were applied by Kocher in order to avoid all danger of myxedema. In 1895 he published thirty-four observations with thirty-one cures or improvements, and three deaths (one not due to the operation). At the German Surgical Congress in 1895, Rydygier compared his results with those of Kocher. By the ligation of the four arteries in a single session he obtained among twenty-two cases, twenty cures or improvements. There were two failures, without any serious complication, tetany or myxedema. In the experience of

Weinlechner, tetany has been known to follow upon the ligation of the two superior thyroid arteries.

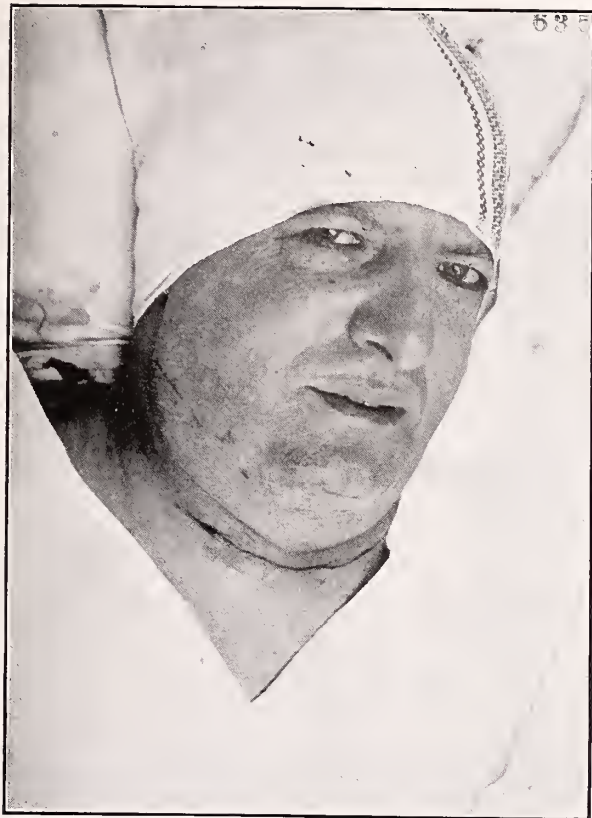


Fig. VII.—Case III. Immediately after operation. Wound sutured, ready for dressing.

Bilateral ligation of the inferior thyroid arteries, with resection of the right sympathetic nerve, was performed by Patel and Leriche, in the case of a woman twenty-six years of age. The large goitre diminished in size, but soon increased again, and six weeks later the right half of the thyroid was extirpated. The patient rapidly succumbed to cachexia, within three weeks of the operation, and at autopsy a thymus gland the size of a walnut was found, although clinically the case was not one of thymus death. The mortality of vascular ligation, both single and double, in the worst types of the disease, in Mayo's experience fully equalled or exceeded the mortality of thyroidectomy.

According to Mayo, the method of ligation now has an accredited position in the treatment of systemic goitre. He states that patients seen in the early stages are sometimes wonderfully improved by the simple operation of double ligation. In mild cases, or when the patient is operated upon at an early date, ligation of the blood and lymph vessels is recommended by him in the treatment of hyperthyroidism. This intervention serves to prevent the production as well as the outpouring of the secretion, and a complete cure frequently follows.

The same is adopted by a number of operators

in the very grave cases, which are thereby essentially improved, so that the larger lobe with the isthmus can be removed later under more favorable conditions. The general health is often greatly benefited by the ligation, and the patients gain in weight.

SELECTION OF OPERATIVE METHOD.

The unilateral type of systemic goitre always affords favorable prospects for operative interference. In a general way, after the patient has been prepared by improving the general condition, three-fifths of the goitre may be removed.

Kocher, in a recent contribution, emphasizes that operative procedures are not only permissible, but positively indicated in all goitre cases where an increased function of the thyroid gland can be demonstrated by clinical observation and examination of the blood. Two or three of the main arteries may be tied, first on one side, then on both sides. In case the result is not sufficient, a portion of the goitre may be extirpated in the third session. One-half of the gland or the more considerably enlarged lateral lobe, may be removed, practically always with the certainty that not too much has been ablated, and without risking the onset of symp-



Fig. VIII.—Case III. A, left lobe of thyroid. B, growth from isthmus—mediastinal goitre.

toms due to loss of thyroid function.

Vascular ligation and partial thyroidectomy have been combined in such a way that uni-

lateral excision is performed with ligation of an artery of the opposite side. This procedure is advocated by Landstroemme. In recurrent

plied, under general anesthesia, in three instances, with one death. Partial strumectomy was performed in the eight remaining cases, always with radical improvement.

Mayo's goitre operations exceed two thousand in number, and contain series of seventy-six to ninety cases without a death. About seventy per cent. of the patients consider themselves as entirely cured. In a recent contribution (1912) he reported having operated on a consecutive series of 278 cases of exophthalmic goitre without a death.

Early interventions upon ordinary goitres have so low a mortality as to render this danger practically negligible at the hands of skilled operators. In case of the combined procedures, as well as in simple strumectomies, the operative mortality has been extraordinarily diminished of recent years. Jaboulay has not lost a patient operated upon for benign goitre since 1900; and Bérard operated with the same success on a series of eighty-five cases between 1900 and 1908. Kocher's record of his fifth thousand of goitre operations in the Bern Clinic, completed on March 11, 1912, stands as follows: Among 603 uncomplicated, although in part very difficult goitres, there was no death due to the operation. The same remark applies to nineteen operations for recurrent goitres, which are apt to prove especially difficult on



Fig. IX.—Case IV. Before operation.

goitres an attempt may be made to induce atrophy of the remaining lobe through application of a ligature around one or both of the remaining arteries. If the reaction after the ligation of the vessels at the left upper pole be not severe, the right lobe, the isthmus, and possibly a portion of the left lobe, are removed by Mayo at a second operation.

In thirty-two cases of systemic goitre, cured by operation, reported by Klemm in 1908, the intervention always consisted in excision of the diseased half of the gland. Where the entire gland was affected, the excision was combined with ligation of the vessels of the opposite side. The operation was invariably performed in one session, under local anesthesia.

As a surgical curiosity, the anastomosis of the central end of a thyroid artery with the peripheral end of a thyroid vein has been suggested, in selected patients, with the object of diminishing the goitre without a strumectomy. Although the operation is hardly easier than strumectomy, it is claimed to offer the advantage of better avoidance of operative complications, especially injury to the recurrent nerve.

OPERATIVE RESULTS.

In eleven cases of systemic goitre reported by Krueger, in 1908, vascular ligatures were ap-



Fig. X.—Case IV. One year later.

account of cicatrices or adhesions. Of 26 excisions in malignant goitre, all patients were cured. Thyroid operations, when properly per-

formed, lead usually to a cure or at least to an improvement of systemic goitre, in the experience of Kocher. Definite end-results could be compiled in 320 operative cases, recently reported by this authority (1912). A complete cure was obtained in 150 of these patients, while 148 still present individual symptoms of the disease, such as protuberant eyes or functional disturbances of thyroid origin, but with marked general improvement. The outcome was unsatisfactory in only 22 cases, either because the operation could not be completed, or on account of recurrence, in five per cent. of the cases; or because secondary disturbances on the part of the kidneys or the liver failed to subside after the goitre operation.

Concerning permanent results of operative treatment of systemic goitre, Weispenning (1912), writing from the First Surgical Department of the Hamburg-Eppendorf General Hospital, Service of Professor Kümmell, points out that the cases operated upon during 1889 to 1900 have already been re-examined twice, first by Schulz, in 1911; then by Friedheim, in 1905. The re-examination of Schulz covered twenty cases, the longest interval since the operation being eleven years, the shortest one and one-quarter years. In eighteen of these twenty cases, the operation proved to have been

Friedheim, nearly five years later, showing permanent cures in fourteen cases; marked improvement in two cases; and moderate improve-



Fig. XII.—Case V. One month after operation.



Fig. XI.—Case V. Before operation.

perfectly successful; of the remaining two cases there was one failure and one death. The nineteen survivors were again examined by

ment in three cases. The fourteen cures must be considered permanent, as, in the last case operated upon, four years had elapsed at the time of the re-examination. Of these nineteen cases, five were examined for the *third* time by Weispenning, who also carried out the first re-examination in eleven of fifteen cases operated upon from 1900 to the beginning of 1910. The sixteen re-examined cases are divided by him into four groups, according to results:

- (1) Permanent cures, four cases.
- (2) Temporary cures, three cases.
- (3) Improvements, two cases.
- (4) (a) Recurrences, five cases.

(b) Cases with goitre of the side not operated upon, two cases.

In thirty-five operative cases, the findings in 1911 were:

Permanent cures, fifteen cases, forty-three per cent.

Temporary cures, three cases, eight per cent.

Improvements, two cases, seven per cent.

Recurrences, seven cases, twenty per cent.

Deaths, three cases, eight per cent.

Not re-examined, five cases, eight per cent.

The operation in all cases had an immediate beneficial result. In some this became permanent. In others it proved transitory, either because of a recurrence, or of the subsequent development into a goitre of the part of the

thyroid which had been left behind. In the latter event the hyperthyroidism which the operation had temporarily relieved returned

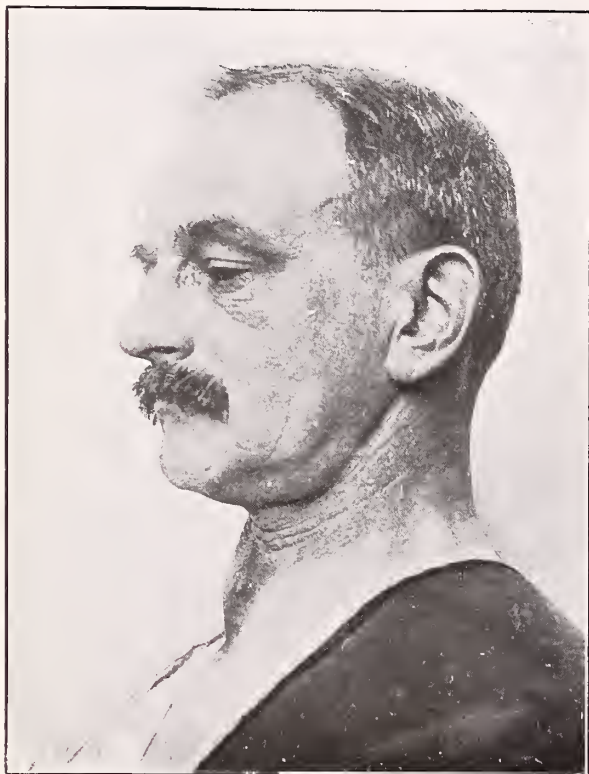


Fig. XIII.—Case VI. Condition before operation.

sooner or later after the interference, eliciting in part or entirely the typical objective and subjective symptoms of the disease. This outcome of operative intervention again corroborates the belief of Kocher, Kümmell, Mayo, and other experienced operators, in the efficiency of surgical procedures in systemic goitre, the operation to be performed at the earliest possible moment, while the disease is still in its incipency.

In the Mayo clinics, during the years, 1905, 1906 and 1907, two hundred operations were performed for hyperthyroidism. Of this number, twenty-two were males and one hundred and seventy-eight females. Ten patients died as the result of the operation. Letters were sent to the remaining one hundred and ninety and answers were received from one hundred and sixty-seven. Of these, one hundred and sixteen, or 70 per cent., were cured; thirty-two, or 19 per cent., improved; ten, or 5.8 per cent., slightly improved; nine, or 5.2 per cent., not improved.

Klose's compiled statistical material from several large clinics with altogether two hundred and ninety-eight cases (1911) shows:

191 cases, sixty-four per cent. cures. (Two to eighteen years).

72 cases, twenty-four per cent. improvements.

7 cases, three per cent. not cured.

6 cases, two per cent. recurrences.

22 cases, seven per cent. deaths.

Concerning the functional results after the various operative procedures, the dyspnea and dysphagia which most frequently require intervention, are amenable to improvement, provided these symptoms are due to the goitrous enlargement itself. Nearly asphyxiated patients not uncommonly regain free and easy respiration on the day of the operation, and such favorable results are noted in about three-fourths of the cases. Difficulty in swallowing is apt to persist and even increase during the first week following the operation, after which time it gradually subsides.

As soon as the operation has stopped the hypersecretion of the thyroid gland and removed the obstruction of the return circulation, there is usually an end of the cardiovascular disturbances, such as tachycardia, palpitation or persistent edema of an upper extremity. The results are not so positive when the structure of the myocardium has been affected, although even in these cases there is often a striking improvement. Together with the regulation of the heart action and the subsidence of the chronic pulmonary congestion, the functions of the other organs are also improved, in consequence of the better blood supply. Aside from exception-



Fig. XIV.—Case VI. Operation complete. Wound sutured, ready for dressing.

ally unfortunate cases, in which myxedema follows even on limited resections, the signs of thyroid insufficiency gradually subside, the re-

maining lobules of the gland assuming increased activity.

With special reference to nervous disturbances, the recurrent nerves, being in closest contact with the goitre, are apt to be profoundly altered by it. In some cases, where the muscles of the larynx had not become entirely atrophied, the removal of the thyroid swelling has been known to relieve even total laryngoplegia. In several observations of Roux and of the author, the patient's hoarse and goitrous voice became perfectly normal after the operation. Bérard noted two cases in which the ablation of the goitre relieved neuralgic disturbances of the upper extremity, with incipient atrophy of the muscles of the shoulder.

The cases of improvement after operative treatment, according to Friedheim, illustrate the importance of correct dosage of the part of the goitre that is left behind. In some of his cases, a goitre was again present at the time of the report, so that a cure was still to be expected from a second or third operation. His investigations were made upon a series of twenty cases of systemic goitre, from the clinics of Kümmell, which were treated by enucleation or resection of a portion of the goitre. Later reports could be secured from sixteen of these patients. Fourteen were found to be cured, no trace of the goitre being left. There were two marked improvements, three moderate improve-

of from four to fifteen years after operation.

In reporting the results of surgical treatment in systemic goitre before the French Surgical



Fig. XVI.—Case VII. Before operation.

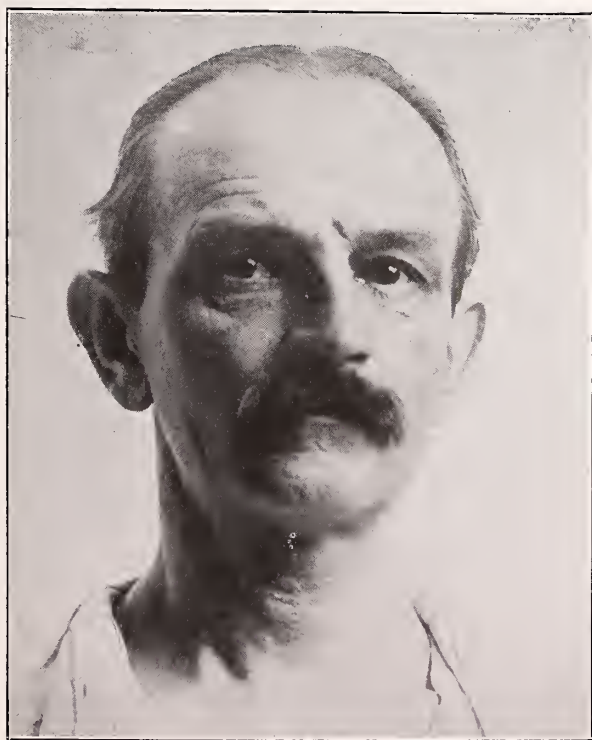


Fig. XV.—Case VI. Two months and a half after operation.

ments, and one death due to tetany, ten days after the operation. At the time of the report the fourteen permanent cures covered periods

Congress, in 1910, Delore and Lenormand state the following figures: Internal treatment yields twenty to twenty-five per cent. cures, ten to twenty-five per cent. mortality. Surgical treatment of the thyroid itself has a mortality of from zero to seven per cent., average four per cent., as calculated for about fifteen hundred operations. Cures, seventy-five per cent., according to Kocher; fifteen per cent., according to Garré. Including the great improvements with the cures, there are six hundred and sixty-six favorable cases, as compared to one hundred and seventy-four slightly improved or recent cases, and sixty-three deaths due to operation. Since the publication of this report, the operative morality has been strikingly diminished.

SUMMARY.

It may be said that the internal or medical treatment of goitre and other affections of the thyroid gland has failed to show results even approaching those realized by the handiwork of the surgeon. The organo- and serotherapeutic results are often of only limited duration, and even in the most favorable cases frequently require periodical repetitions of the treatment, for the maintenance of the improvement. Per-

manent cures in the grave forms of the disease are very rare. On the other hand, with modern methods of technic and the proper care before



Fig. XVII.—Case VII. Three and a half years afterwards.

and after operation, the surgical mortality is exceedingly small, while a more or less prompt or progressive improvement, approaching a cure in the majority of cases, is usually obtained by modern goitre operations.

ILLUSTRATIVE CASES.

The following brief histories, with pictures, selected from a large number of cases operated upon by different methods, according to requirements, illustrate some types of operative technic and results. Elsewhere I have dealt with other phases of the subject. (See bibliography).

CASE I.—G., female, aged 55.

Symptoms.—Gradually growing worse for some years. Nervous, rapid heart, tremor, general weakness; enlarged and throbbing neck. At times so depressed as to appear to be a typical case of melancholia.

Operation, July, 1912. Partial thyroidectomy, right half, and a small portion of left upper pole removed, under local anesthesia. Recovery uneventful. Gradual gain in nervous and physical strength. All melancholia disappeared. Perfectly well February 14, 1914.

CASE II.—W., female, aged 68. Referred by Dr. James A. Babbitt, of Philadelphia.

Symptoms.—Slight goitre at 17, which disappeared. Three years ago neck gradually grew larger, until there was absolute loss of voice; marked cyanosis at times; frequency of heart action; nervousness; some tremor.

Operation, August, 1912, under local anesthesia. Removal of right lobe and isthmus. A part of the goitre was markedly calcareous. Recovery uneventful. Within a few days voice began to return. Perfectly well, February 14, 1914. Voice normal, no cyanosis. Practically all symptoms relieved.

CASE III.—G., male, aged 48.

Symptoms.—Markedly nervous; rapid heart; at times extreme dyspnea, with cyanosis; unable to walk upstairs. Getting steadily worse for some months, unable to work, practically an invalid. Definite hyperthyroidism, but also marked local symptoms from displacement of the trachea one and one-half inches to the right, and softening of several of the tracheal rings by pressure.

Operation, February, 1913, under local anesthesia. General anesthesia absolutely contraindicated. Left lobe of thyroid, (Fig. VIII-A), and a growth from the isthmus, (Fig. VIII-B), more than twice the size of the enlarged lobe, removed. Uneventful recovery. Back at work. Well.

CASE IV.—C., female, aged about 48. Referred by Dr. W. H. Cantle, of Mamaroneck, N. Y.

Symptoms.—Nervousness and tremor.

Operation, November, 1912, under local anesthesia. Enormous bilateral goitre, with colloid and cystic degeneration. Inflammation involving the skin. Partial thyroidectomy on each side, including the isthmus, which was markedly degenerated. It was possible to leave a small portion of lower pole of each lateral lobe. Recovery uneventful. Perfectly well February 1, 1914.



Fig. XVIII.—Case VIII. Before operation.

CASE V.—B., female, aged 25.

Symptoms.—Difficulty in swallowing. Enlargement of neck for several years. Nervousness, palpitation, throbbing in neck.

Operation, December, 1913, under oil-ether rectal

anesthesia. Right lobe removed. A preliminary of $\frac{1}{2}$ gr. morphin, 1/150 gr. atropin, one-half hour before operation. Six ounces of a seventy-five per cent. solution of ether in oil, administered by Gwathmey's method. Anesthesia entirely satisfactory in



Fig. XIX.—Case VIII. One month later.

fifteen minutes. Recovery uneventful. Considers herself well.

CASE VI.—W., male, aged 47.

Symptoms.—For some years had had persistent cough, with sensation of choking. Was advised by family physician to go south for what was diagnosed as early pulmonary tuberculosis. Five weeks before consulting me a small swelling was discovered in the lower part of the neck, right side, which the physician pronounced a tuberculous gland. Upon examination a very small goitre was found. Slight hyperthyroidism, but marked general depletion from constant coughing and anxiety over his supposed tuberculosis condition.

Operation, February, 1912, under local anesthesia. Small goitre, right lobe, lower pole, removed. This enlargement was so situated as to be far down, easily escaping detection. It rested directly upon the recurrent laryngeal nerve. Recovery uneventful. Cough ceased after operation. Perfectly well, February 1, 1914.

CASE VII.—R., female aged 20.

Symptoms.—Had had goitre symptoms for thirteen years. Marked nervousness; tremor; exophthalmos so great that eyelids could hardly be made to cover the eyeballs; pulse between 130 and 150; unable to do any work; practically an invalid.

Operation, July, 1910, under local anesthesia. Complete removal of right lobe, and upper part of left lobe. Recovery uneventful. Perfectly well, Febru-

ary 1, 1914. At work as professional singer and dancer.

CASE VIII.—W., female, aged 52.

Symptoms.—Swelling in neck for twenty-three years, but so slight could hardly be detected. Headache for ten years. At times distinctly short of breath, choking sensation, palpitation, cyanosis, nervousness, eyes abnormally protuberant. Distinct picture of hyperthyroidism, with hardly perceptible goitre.

Operation, April 1913, under local anesthesia. Mass in right lobe enucleated. Ligation of superior thyroid, left side. Recovery uneventful. Perfectly well, February 1, 1914.

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THE ETIOLOGY AND PATHOLOGY OF LOBAR PNEUMONIA.*

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The inflammatory process resulting from the direct action of bacteria upon the lung is called "pneumonia," therefore, pneumonia is an infection of the lungs. Almost all the known pathogenic bacteria have been proved to be capable of producing such infection. To stir up the process it is necessary for the bacteria to invade the lung tissue, and invasion of the lung may occur through the bronchi (inhalation pneumonia) or through the blood and lymph stream (hematogenic or lymphogenic) pneumonia. It is stated¹, however, that bacteria may pass by way of the lymphatics through the lungs without inciting the sequence of events due to their presence. Therefore, whether or not pneumonia is produced must depend upon other factors, such as increased virulence of the bacteria, or decreased resistance on the part of the host, or both. That decreased resistance or increased susceptibility to pneumococcal infections is a factor of the utmost importance will be brought out later.

Pneumonia is today one of the great problems of preventive medicine. Cohen² has recently emphasized the striking fact that the number of cases reported is steadily rising, and that all over the world the percentage mortality in pneumonia is increasing. Until recently this mortality was given as 20 to 30 per cent., but statistics show that it now ranges from 30 to 40 per cent. Such a contrast, considered with the significant fact that the incidence of pneumonia is now greater, in other words, that more cases of pneumonia are occurring every year and that of these cases about ten per cent. more are dying now than a decade or two ago, illustrates quite forcibly the seriousness of this great problem.

Lobar pneumonia is an acute infection caused most commonly by the pneumococcus. This is a somewhat elliptical, lance-shaped coccus, usually found in pairs and definitely encapsulated. It is normally found in the mouth and respiratory passages of healthy individuals, some observers giving a proportion of one out of every three persons, others giving figures as high as 80 to 90 per cent. of positive findings of all cases investigated. Some persons always harbor a virulent type. The virulence of the organism is, obviously, extremely variable. Its viability is not great. When exposed to sunlight it dies within one and one-half hours. In moist sputum in a dark room it may live ten days.

Various other bacteria, such as the pneumobacillus, streptococcus, and staphylococcus may be associated with the pneumococcus in lobar pneumonia, but these are of importance merely as secondary invaders.

Much has recently been added to our knowledge of pneumonia by the notable work of Cole³ and Dochez⁴ on the classification of pneumococci. These investigators have shown that while it is true that a large majority of the cases of lobar pneumonia are due to the pneumococcus, so far as biologic reactions are concerned these cases of pneumococcus pneumonia are caused by at least four different types of organisms. In other words, pneumococci isolated from cases of lobar pneumonia belong to one of four distinct types, each of which manifests specific immune reactions. Because of the inconstancy in differences of morphologic and cultural characteristics of variant strains of pneumococci, and since immunologic reactions manifest a peculiar strict specificity, the latter have been adopted as a basis of differentiation. It was found by protection experiments that the immunization of animals is strictly limited to the particular type of pneumococcus used in the process of immunization, so that by observing the sequence of events induced by injecting into animals virulent cultures of the isolated pneumococcus mixed with protective serums obtained from animals immunized against single varieties, the type of the organism tested can be detected. If this organism belongs to the same group as that from which the serum had been derived the animal is protected from its pathogenic effect, whereas if it belongs to a different group the animal is not protected. It was found, further, that agglutination reactions correspond with these protection reactions. In that way it has been possible to distinguish four distinct groups of pneumococci, known as group 1, group 2, group 3 (mucosus), and group 4 (heterogenous). The first two are made up of organisms closely related immunologically to the others of their respective groups. Group 3 consists of pneumococcus or streptococcus mucosus. Whether or not differences exist between individual members of this group is not yet fully known. Group 4 embraces a number of distinct members which manifest all the cultural and common characters of pneumococci, but do not seem to be related to each other so far as can be demonstrated by specific biologic reactions. Because of the lack of such distinctive common characters these are classed as heterogenous. They were obtained in about 22 per cent. of the cases thus far studied. Almost one-half of the cases studied were due to pneumococci belonging to group 1. The most virulent

*Read at the 40th semi-annual meeting of the Northern Tri-State Medical Assn., Kalamazoo, Mich., Jan. 13, 1914.

1. Principles of Path: Adami and Nicholls, 1909, II, 295.
2. Cohen, S. Solis: Jour. A.M.A., 1913, LXI, 107.

3. Cole, Rufus: *idem*, 663.

4. Dochez, A. R., and Gillespie, L. P.: *idem*, 727.

are those of groups 1 and 2, the least virulent are those of group 4. The direct practical importance of these studies is very evident. Unless the curative serum or vaccine employed in any case is homologous with the pneumococcus causing the infection, it will have no therapeutic value; if, on the other hand, it is homologous, its therapeutic value may be very great.

ETIOLOGY.

As to the etiology of pneumococcic infections, there are many factors of considerable importance. Some of these may now be briefly considered. In general it is said that the predisposition to pneumonia is rather marked up to the sixth year, that it then diminishes up to the fifteenth year, and after that increases with each subsequent decade. The mortality after 65 is more than seven times greater than the period between fifteen to forty-five, and about three times as great as in the period between forty-five and sixty-five years. It is observed in males oftener than in females. No other acute disease recurs in the same individual with such frequency. It is apt to follow as a result of bodily injury, especially when the chest has been injured. It is more fatal in the colored than in the white race. It is more common in the big industrial centers, especially in the overcrowded portions. Those who are exposed to hardship and to cold are particularly susceptible. The highest incidence of pneumonia is in the winter and spring months, more so during the months of February and March. Climate does not really matter very much, as the disease prevails equally in hot and cold latitudes. Moreover, any debilitating condition leading to a lessened vitality on the part of the individual, such as alcoholism, diabetes, Bright's Disease, chronic organic nervous disorders, wasting diseases, exhausting occupations, pulmonary lesions, and so on, are very significant as predisposing or contributory causes.

PATHOLOGY.

In lobar pneumonia the specific anatomic changes occur in the lungs. Part or all of a lobe or an entire lung may be involved, and the process may be unilateral or bilateral. The tendency is for a whole lobe, and the right lower lobe most frequently, to become involved. The inflammation occurs in about 52 per cent. of the cases on the right side, 33 per cent on the left, and in about 15 per cent. on both sides. For the purpose of description four successive stages of the inflammatory process are said to occur. These are (1) stage of engorgement, (2) stage of red and (3) of gray hepatization, and (4) resolution. Such a division is useful only for descriptive purposes, for in this, as in other conditions, the sequence of events is not always typical. Quite frequently several

stages are seen simultaneously at autopsy in the lung. The inflammatory process generally begins with congestion, and is promptly followed by consolidation. In the first stage the pathological condition is one of active inflammatory hyperemia. The lung is redder than normal and rather edematous. Microscopically, the vessels are congested, the epithelial cells are swollen and desquamated, and occasional red blood cells may be found in the alveoli. In the second stage the lung is quite red, swollen, heavier and firmer than normal, it pits on pressure, and is rather friable. On section much blood-stained, turbid fluid can be squeezed out. The exudate contains mostly red corpuscles and some leucocytes. Microscopically, the capillaries are markedly congested, the epithelial cells are swollen, and there is considerable desquamation with filling of the alveolar spaces by these desquamated so-called "catarrhal" cells, red corpuscles, and leucocytes, all enmeshed in a fibrin network. Because of its solidity, its reddish color, and its general appearance, the lung may resemble the liver, hence the term "red hepatization." The first two stages are rarely seen at autopsy, except in individuals dying by accident or in limited areas at the edge of a creeping pneumonia, for nearly all fatal cases of pneumonia are farther advanced in the course of the disease. The next or third stage is that of gray hepatization. The lung becomes more swollen, it is very firm and heavy. The pleura becomes granular-looking and is covered with a varying amount of fibrinous exudate, for in every case of lobar pneumonia there is, in fact, also an associated pleurisy. The lung is friable, non-crepitant, and does not float on water. On section its surface is granular, and of a color varying from reddish-gray to grayish-yellow. Microscopically, the capillaries seem to be obliterated, the alveoli are filled with a purulent exudate and their walls are compressed. The exudate is made up almost entirely of leucocytes with fibrin, occasional red cells and "catarrhal" cells. The final stage of the inflammatory process, or resolution, sets in with breaking up of the fibrin and autolysis of the pus cells. The lung shrinks, and feels boggy. On section it is moist, and of a color ranging from grayish to yellow. Microscopically, the picture is like that seen in the third stage, except that the capillaries are now becoming permeable, and degenerative changes of the fibrin and pus cells have begun. The broken-down exudate is removed chiefly by the lymphatics and to some extent by the expectoration.

Associated with these specific anatomic changes, there is a bacteremia and atoxemia of varying intensity. The pneumococcus can be isolated from the blood in many cases. Prochaska obtained it in all of his 40 cases; Pearce in 97

per cent. of the 125 cases he reported; Rosenow in 91 per cent. of his 145 cases; Kinsey in 75 per cent. of his 25 cases; Hastings and Boehm⁵ in only 30 per cent. of 33 cases they recently reported. In nearly all typical cases there is a definite leucocytosis with an increase in the percentage of polynuclear neutrophilic leucocytes. This appears early, persists, and disappears with the crisis. The degree of leucocytosis is not so much an indication of the extent of pulmonary involvement or severity of the disease as an index of the degree of natural resistance or reaction of the body against the infection. There occurs also a marked retention of chlorides, and this feature is so constant that it is of considerable value in the differential diagnosis of lobar pneumonia.

Attempts have been repeatedly made to learn something about the nature of the general biologic changes that occur within the body and the factors that contribute to the final outcome in lobar pneumonia. As already indicated, most cases recover, and recovery is usually by crisis. In the less fortunate cases the disease may terminate in induration of the lung, the so-called delayed resolution or chronic pneumonia, or in abscess or gangrene of the lung, or in death. Unless some serious accidental complication develops, death is usually due to the development of a general septicemia. The role played by the chemical change of the blood in the causation of death has been discovered quite recently by Peabody⁶. His studies show that in most cases of uncomplicated lobar pneumonia the decrease of respiratory surface is completely compensated for, so that the oxygen content of the blood is within normal limits. It should be emphasized here that so far as the respiratory function itself is concerned, it can be carried on with the lung capacity reduced to a rather small volume, as low as one-sixth according to the recent investigation of Bernard and Mantoux⁷. In the terminal stage of fatal cases of pneumonia where death does not occur suddenly, Peabody showed that there is often a prolonged diminution in the oxygen content of the blood, and with this a progressive decrease in the oxygen—combining power of the blood, probably due to a change of the oxyhemoglobin to methemoglobin. This change in the hemoglobin molecule making it no longer capable of readily taking up and giving off oxygen is probably a factor in the immediate cause of death in many cases.

Many attempts have also been made to gain some knowledge of the nature and sequence of events producing the crisis. Clough's⁸ recent

contribution contains a fund of valuable information on this question. It is now agreed that crisis is brought about by an increase in some of the defensive forces of the body which inhibit the unrestricted development of the bacteria. Clinically it has been found that in favorable cases of pneumonia the percentage of positive blood cultures and the number of organisms present in the blood diminish as crisis is approached. Crisis, then, is coincident with the development of an immunity dependent upon the appearance of antibodies in the circulation. The accumulated evidence shows that there are developed in the blood serum active substances called "bacteriotropines" which bring about active phagocytosis of the pneumococci. Their action is strictly specific, i. e. the phagocytic activity which these bacteriotropines cause is strictly limited to the homologous strain of pneumococci which stimulate their formation, and they differ from the so-called "opsonins" with respect to some of their physical properties. The phagocytic activity of serum containing these substances has been found to run closely parallel with its protective power for animals, so that it is assumed that the protective action of the serum is dependent upon its power of promoting phagocytosis. The strict specificity of these antibodies partly explains the failure to produce a successful protective or curative serum for pneumonia. We do not yet know enough about variations and differences of the pneumococci, nor of the chemical and biological changes which they induce within the host. It is to be hoped that as our knowledge increases along these lines, we may be able to deal more effectively with the problem of the prevention and cure of pneumonia.

THE SYMPTOMOLOGY AND DIAGNOSIS OF PNEUMONIA.*

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Nothing much has been added to our knowledge of the symptoms of pneumonia since Auenbrugger and Laennec first described the physical signs about the year 1819. It is not my disposition to bore you with a discussion of the familiar symptomology of typical cases of pneumonia. Generally speaking, the clinical picture in any case is exactly similar to that in many other cases of the same condition, the sudden onset with chill, pain in the side, headache, high temperature, cough, rusty sputum, dyspnoea, herpes and leucocytosis. These symptoms, occurring in connection with dulness on percussion, increased fremitus, tubular breath-

5. Hastings, T. W. and Boehm, Emil: *Journ. Exp. Med.*, 1913, XVII, 239.

6. Peabody, F. W.: *ibid.*, XVIII, 1, 7.

7. Bernard et Mantoux Ed. *Abstr.*, *Jour. A.M.A.*, 1913, LX, 1794.

8. Clough, P. W.: *Johns Hopkins Hosp. Bull.*, 1913, XXIV, 295.

9. Rachford, B. K.: *Dis. of Children*, 1912.

*Read before the Tri-State Medical Association, at their semi-annual meeting, Kalamazoo, Michigan, January 13, 1914.

ing and crepitant rales, are sufficient and familiar to you all. There are, however, pneumococcic infections of the lung which occasionally confront us with difficulties of solution, therefore it may be well to consider a few of these conditions. I think you will all agree with me when I say that the pneumonias occurring in children and the aged are often atypical, giving rise to symptoms which are frequently misleading. There are many explanations offered for the peculiar diversity of symptoms in infectious diseases attacking children. It is common knowledge that the nervous system of a child is more susceptible to toxemia than that of the adult; also children are difficult to examine and often refer their pain to parts unaffected. For this reason the child has been operated for appendicitis when pneumonia was the sole explanation for the abdominal symptoms. I have recently seen a child suffering from otitis who referred his pain to a tooth in the lower jaw.

Not rarely one sees pneumonia in children simulating symptoms of meningitis; this not infrequently occurs in the adult. It is claimed that this form of pneumonia, associated with delirium and convulsions, is due to the apical form of the disease, seen more often in children than the adult, and frequently very confusing. Again in children there is usually practically no sputum, very little cough and seldom rigor.

In reviewing the literature I have observed that the mistakes made in the majority of the cases of atypical pneumonia, reported in children, incorrectly diagnosed or mistaken for other diseases, have been due to neglect of an examination of the chest. The same thing may be said of senile pneumonia and of secondary pneumonias, occurring in chronic diseases. The physician has not had pneumonia in mind or has excluded it on account of an atypical history. One has but to bear in mind that sixty per cent. of all cases of pneumonia occur in children: the symptoms are not infrequently misleading. The chest should be examined in every case with a temperature. This precaution will often save embarrassment.

There are cases of pneumonia, for instance, abortive pneumonia, and the rare cases of fulminating pneumonia, which are almost impossible of diagnosis.

Speaking of fulminating pneumonias recalls some cases reported by McGowan and McNeil¹ collected from an industrial school near Edinburgh. There were twenty cases of the fulminating type, epidemic in character, showing a rapidly fatal issue. One of two boys went to bed well, and was found dead the next morning. The common clinical manifestations were a very sudden onset of high fever, headache, vomiting, herpes and some cough with loose blood stained sputum. The cases autopsied showed either acute general congestion or irregular

areas for consolidation. When sought for pneumococci were found in abundance in the lungs, but only in one case in the blood. Charles Macalister² describes four cases of death occurring in two hours in boys from an industrial school, which he attributed to pneumonia and recently Ernest Glynn³ reports two small epidemics of pneumonococcic infection of the lung in a public institution. There were fifteen cases with four deaths. Two terminated fatally within seven hours after the onset of the first symptoms. The ordinary postmortem signs of pneumonia were completely absent. In two others, one showed definite pneumonic consolidation and in the other pneumonic consolidation had begun. In all the infection was primarily respiratory. Septicaemia could not be demonstrated but profound degeneration of the kidneys with thrombosis and hemolysis in the vessels of the lung and kidney were found. Clinically all the cases were atypical on account of the prominence of gastrointestinal and cerebral symptoms. The question arose, in the above cases where the pneumonia was fulminating, as to whether there was a factor other than the lung infection causing death. In one of Glynn's cases the thymus was hypertrophied and weighed over two ounces. McHowan and McNeil claim that their case of fulminating pneumonia had status lymphaticus. It is well known that patients with status lymphaticus die from very trivial causes, and it may not be too presumptuous to suppose that the pneumococcus infections may produce sudden death in this disease before physical evidence of pneumonia is present.

In the aged the same difficulties arise but more often due to lack of symptoms, the disease often begins insidiously without complaint on the part of the patient. In these patients there is usually some cough but little temperature. The cases may be afebrile. I recall a case in the City Hospital in New York, of a patient in the genitourinary clinic, who dropped dead in the ward. At autopsy one lung was found completely consolidated and in the other consolidation had begun. This patient had made no complaints and the chart revealed a temperature not over 99.2° at any time during his stay in the Hospital. However these symptomless form of pneumonia invariably show signs in the lungs on examination. In the asthenic where the patients are suffering from fatal chronic disease, repeated examinations of the lungs will prevent the chagrin not infrequently encountered at autopsy.

In cases of ambulatory pneumonia where the patient complains of very little besides slight cough, malaise and anorexia, one may neglect to examine the lungs, and of course the diagnosis is missed. These patients usually have a very slight temperature or none at all. On ex-

amination, the lungs usually show a few rales with a small area of consolidation at one base. Recovery is usually complete in a week or ten days under treatment with simple cough remedies. These patients frequently go about without consulting a physician.

DIAGNOSIS.

The diagnosis of pneumonia is seldom difficult, but mistakes are common and not always due to carelessness, and in a small minority the diagnosis is attended with much uncertainty. Mistakes arise: (1) where the signs are absent, here a careful history is very important; (2) where the early symptoms are cerebral; (3) where the symptoms are abdominal; (4) because certain of the specific fevers have a pneumonic onset; (5) occasionally acute pneumonic tuberculosis simulates pneumonia; (7) sometimes pleurisy with effusion will show increased fremitus and tubular breathing together with chill and fever; (8) rarely a subphrenic abscess will simulate pneumonia. I know of a case of postoperative gastroenterostomy for duodenal ulcer, develop cough, dyspnoea, chill and high temperature, tubular breathing, dulness on percussion and increased fremitus. For ten days this patient was thought to have pneumonia, but a needle revealed pus below the diaphragm. Here one could well bear in mind the researches of C. F. Hoover⁴, who has shown experimentally that where the diaphragm is pushed upward from below the subcostal angle on the affected side, during normal inspiration shows a greater excursion than that of the unaffected side. This never occurs in pneumonia. In empyema the diaphragm is pushed downward, here the excursion of the subcostal angle on the affected side is inward instead of outward. The explanation of this phenomena is shown to be due to the antagonism offered by the diaphragm to the scaleni and intercostal muscles.

It might be well to recall an observation made by Dr. Hughlings Jackson on the absence of knee-kick in pneumonia. This reflex disappears about the third or fourth day to reappear upon the ninth. I have had no experience with this sign, however. In the differential diagnosis, the examination of the urine may be of some importance, as Hutchinson has shown that there is a marked diminution of sodium chloride in the urine in pneumonia, which persists for a day or two after the crisis.

We may conclude that 90% of all pneumonias with atypical symptoms can be diagnosed by a careful systematic examination. A small minority of the cases show no signs in the lungs. Should these patients survive, signs sooner or later develop and a correct diagnosis may be made.

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3. Glynn, Ernest, *Quart. Jour. Med.* London, April, 1913, p. 391.
4. Hoover, C. S., *Arch. Int. Med.*, Aug., 1913, p. 214.

THE ALBUMIN CONTENT OF SPUTUM AND ITS VALUE IN DIAGNOSIS AND PROGNOSIS OF TUBERCULOSIS.*

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When Koch, in 1882, demonstrated the tubercle bacilli, enthusiastic clinicians for a time believed that search for this bacillus in secretions from the site of a lesion would determine absolutely the presence or absence of tuberculosis. Early experience, however, soon indicated that most careful examination for tubercle bacilli in discharges, later proven to be tuberculous, frequently failed to give positive results. In dealing with this class of cases the idea was generally accepted that such discharges contained the bacilli of tuberculosis but the number was not sufficiently great to enable the bacteriologist to find them with the methods ordinarily employed. In support of such views several instances could be cited where animal inoculation had shown the presence of the bacilli when direct microscopic examinations had failed. In routine clinical work, however, animal inoculation is generally impractical except in selected cases. Mixed infection that may kill the test animals before tuberculous lesions have time to develop are often present and difficult to eliminate; the length of time required by test animals to develop lesions characteristic of tuberculosis is such that valuable time is lost; besides test animals are by no means always infected when injected with exudates that can be proven to be of tuberculous origin.

Various methods of concentrating discharges without destroying the tubercle bacilli have been proposed with more or less success. Among such the use of antiformin probably deserves first place. We have used antiformin on several hundred negative sputa with the conclusion that aside from selected cases the method has very little practical value, because if the time required to treat sputum as required in the antiformin method be applied in judicious study of a well prepared slide, the results will be as reliable as when antiformin is used.

*From the Laboratory of Michigan State Board of Health.

Physicians formerly believed tuberculosis to be transmitted chiefly by inhalation. Their theoretical reasons for this opinion were various and need not be considered here. Accepting the theory that tubercle bacilli are generally inhaled directly into the lungs, entering the tissues from the lumen of the bronchi or alveoli, one might reasonably expect the specific germ to be found in the sputum from the very beginning of the disease, if sufficient concentration were obtained or the search were sufficiently prolonged.

Modern investigations indicate that pulmonary tuberculosis is not generally the result of tubercle bacilli having reached the lung through the lumen of the bronchi but that the infection appears first in the deeper structures and that tuberculous lesions are primarily closed lesions that become open only as the disease progresses.

Tubercle bacilli are discharged from open lesions but not from closed lesions. Within the lung a tuberculous lesion may be productive of considerable exudate, but so long as it remains closed the tubercle bacilli appear to be held back by the filter-like action of the surrounding tissue.

The facts are that after all known methods of isolating and identifying tubercle bacilli have been exhausted there still remains a number of cases of active tuberculosis from which tubercle bacilli cannot be demonstrated in the secretions by any method presently known.

THE ALBUMIN REACTION.

The albumin reaction in sputum has received considerable attention among the French workers during the past three years. The determinations have been mostly qualitative and the technic has been that originally employed by Roger and Levy-Valensi,¹ or some modification thereof. The sputum is collected in a dry recipient as free from saliva as possible. Sputum containing blood should never be used as the albumin contained in the blood serum always gives the reaction. The sample is mixed with an equal volume of water and acidified with a few drops of acetic acid to coagulate the mucin. The mixture is filtered through an ordinary filter paper and the filtrate is tested for albumin by boiling with either a little salt or nitric acid. In 1911, Roger² compiled from the literature and his own experience 1638 cases in which the sputum had been tested for albumin including 800 cases of tuberculosis in the second or third stage with negative albumin in only one case and certain features of the bacteriological findings in that case suggested the possibility of pseudo-tuberculosis. In 289 tuberculous patients in the first stage there were only two

giving a negative reaction among those properly tested and the diagnosis was made with some reserve in these. In 284 patients with non-tuberculous pulmonary or bronchial lesions a positive reaction was obtained in 144. He concluded that an absence of the albumin reaction excludes tuberculosis with practical certainty, that the reaction is an important accompaniment of tuberculosis but its presence is not pathognomonic of that infection.

Lesieur and Prirez³ investigated the sputum voided in various conditions for albumin content. They used five cubic centimeters of sputum diluted to twenty-five cubic centimeters with normal salt solution, added five or six drops of acetic acid, filtered and tested in the usual way. They found that of cases without physical signs which subsequently proved to be tuberculous 75 per cent. gave a positive reaction, that all cases with tubercle bacilli in the sputum were positive, that in miliary tuberculosis and pleurisy the result was not constant, the cases of acute lobar pneumonia reacted and that when the reaction persisted into convalescence a new focus or a complication was indicated. Acute broncho-pneumonia and acute pulmonary edema were also positive. On the other hand, in acute bronchitis it was usually negative; in chronic bronchitis and in emphysema always so. In cardio-renal cases a positive reaction was often seen.

Fishberg and Felberbaum⁴ found that the albumin reaction was not positive in every case of pulmonary tuberculosis. They concluded that the activity of the process has considerable influence on the intensity of the reaction. In active progressive cases the amount of albumin was greater than in quiescent or healing cases. In fibroid cases the amount was often infinitesimal or entirely absent.

Numerous other workers have studied the albumin reaction in sputum and agree that the presence of albumin indicates that it is not a superficial secretion but comes from some deep-seated inflammatory process. The reaction is independent of the presence or absence of tubercle bacilli and its intensity bears a distinct relation to the activity of the inflammation. The reaction is constantly present in pneumonia and pulmonary edema and generally absent in bronchitis and other superficial inflammations.

Gelderblom⁵ believes the presence of albumin in sputum to be coincident with a fresh process in the lung. He considers the rise and fall of the albumin content as an index to the course of the process and thus of value in prognosis. He found a rising albumin content to fall sharply following pulmonary hemorrhage and believes that the presence of albumin in the sputum

1. *Presse Medicale* April 20, 1910.

2. *Jour. A.M.A.* ab. Vol. LV1, p. 1619.

3. *Paris Medical*, 1911, Vol. IV, p. 29.

4. *Medical Record*, Oct. 21, 1911.

5. *Deutsche Med. Woch.* Oct. 9, 1913.

early in pulmonary tuberculosis indicates the blood-borne origin of such lesions.

Fullerton⁶ reported the examination of 100 cases and noted wide variation in the amount of albumin. He used the terms "abundant," "moderate," "slight," "trace," and "nil." He concluded that in a majority of cases of pulmonary tuberculosis the sputum contained albumin in considerable amount, but in a small proportion of cases little or no albumin was found; that a positive reaction occurred in various diseases of the respiratory tract; that the albumin reaction was not entirely reliable in diseases of respiratory tract and only of limited value in pulmonary tuberculosis.

Scott⁷ examined 85 cases with tubercle bacilli in the sputum and found albumin negative in 9.4% and doubtful in 27%. This would give positive albumin in only a little over 60% of tuberculous cases and unfavorable conclusions naturally follow.

In reviewing the literature on this reaction we have been impressed with the frequent references to "the intensity of the reaction" and the lack of agreement as to whether certain diseases give positive or negative results. With a test of this kind the personal equation is very great and what would be regarded as a negative reaction by one observer might easily be positive to another. The advisability of putting the reaction on a quantitative basis seems imperative to uniform results.

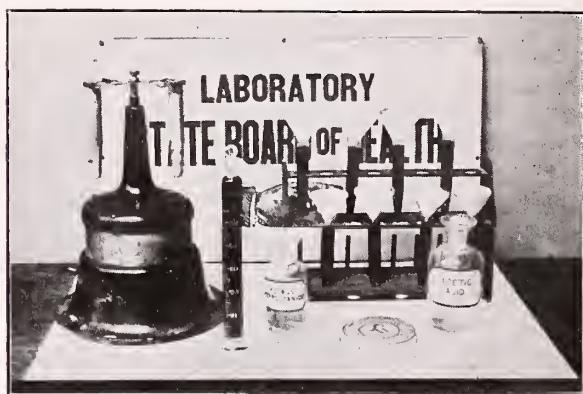
In 1912, Works⁸ published the result of quantitative examination of albumin in the sputa of 168 patients. He mixed with the sputum a three per cent. acetic acid solution, adding slowly and agitating until the mucin was coagulated, then added enough distilled water to make a 33⅓% dilution of the sputum. This mixture was thoroughly agitated, strained through gauze after which a few drops more of acetic was added to insure complete precipitation of mucin and the mixture filtered. Quantitative tests for albumin were made with Esbach's albuminometer as in urinalysis and the result multiplied by three to correct for dilution. He concludes that most active cases whether incipient, moderately advanced or far advanced show 0.2% or more albumin. Improved (slightly active) cases usually have less than 0.2% albumin.

The method employed by Works is undoubtedly an improvement over the qualitative methods previously proposed but possesses certain objectionable features. In the opinion of the writer the quantity of acetic acid should be specifically stated, as an insufficient quantity gives incomplete separation of mucous and excessive quantity disintegrates the leucocytes and prevents proper separation of pus proteins. We

also regard Esbach's solution as an improper reagent for albumin in a mixture so complex as is the average sputum. In many instances a precipitate may be produced with this reagent when true albumen can be shown to be absent. Picric acid, the active ingredient of Esbach's solution, is a general alkaloid reagent. It precipitates with peptones, urates, creatinin and other bodies that should not be measured as albumin. Works found that his method gave albumin reaction with normal saliva, a serious objection that we repeatedly have been able to confirm.

AUTHOR'S METHOD.

In January 1914, Holm and Himmelberger⁹ described a method for the quantitative determination of albumin that appears to give satisfactory results. A quantity of sputum, not



Physicians' Outfit for Albumin Determinations in Sputum.

less than ten cubic centimeters, is collected in a dry receptacle in the usual way. (Samples containing blood should be rejected, as blood invariably contains albumin.) After smears for microscopic examination have been made, a quantity of sputum not exceeding ten cubic centimeters is poured into a fifty cubic centimeter graduated glass-stoppered cylinder. To this is added three times its volume of water containing one per cent. acetic acid, diluting the sputum to twenty-five per cent. After vigorous shaking with the stopper in place, the mixture is filtered through filter paper directly into a graduated centrifuge tube and ten cubic centimeters collected. To this is added five cubic centimeters of five per cent. solution of potassium ferrocyanide in water and the tube whirled in a centrifuge for five minutes at average speed. The amount of albumin is most conveniently recorded in volume per cent., each one-tenth cubic centimeter on the tube being four per cent. by volume after correcting for the original dilution. Absolute accuracy is impractical in this work, so approximate results only need be recorded. If desired, the volume per cent. may be calculated to weight per cent. according to the method of Purdy for urinalysis.

6. *Glasgow Med. Jour.*, July, 1912.

7. *Jour. A.M.A.*, Feb. 8, 1913.

8. *Jour. A.M.A.*, Oct. 26, 1912.

9. *Jour. A.M.A.*, Vol. LXII, 20.

REPORT ON 1500 EXAMINATIONS.

Up to the present time we have employed the above method on something over 1500 sputa, including routine examinations and selected cases. The following table shows the findings

from 1,428 consecutive specimens taken since July, 1913. These samples represent cases suspected of being tuberculous as submitted by various practitioners in different parts of the state.

SPUTUM EXAMINATIONS.					
Albumin Reaction		Tubercle Bacilli			
		Present		Absent	
Absent	123	1—	%	54+	590(1) ² (4) ³ (1) ⁷ (2) ⁹
Below 2% by volume	11(1) ¹³ 18	5+	%	10+	111(3) ¹ (2) ² (1) ³
Between 2% and 5% by volume	23	6+	%	6+	67(4) ¹
Between 5% and 10% by volume	1(1) 34	10—	%	6+	69(5) ¹ (1) ² (1) ³
Between 10% and 25% by volume	10(1) ¹ (2) ¹⁰⁹	31+	%	13—	138(10) ¹ (2) ² (2) ⁴ (4) ⁶ (2) ⁸
Between 25% and 50% by volume	1(1) ¹¹³	33—	%	8+	87(3) ¹ (3) ² (1) ³ (5) ⁴ (5) ⁶ (3) ⁸ (1) ⁹
Above 50% by volume	1(4) 46	13+	%	2—	20(4) ¹ (2) ⁵ (2) ⁸
Totals	346	100	%	100	1082

- *1. Contained blood.
- *2. Later examination showed tubercle bacilli present.
- *3. Had previously shown tubercle bacilli in sputum.
- *4. Abscess.
- *5. Pulmonary edema.
- *6. Pneumonia.
- *7. Acid-fast bacilli, not tubercle bacilli, present.
- *8. Pleuritic effusion.
- *9. Stomach contents.
- *10. Urine from tuberculous kidney.
- *11. Feces from tuberculous intestine.
- *12. Two of these were advanced cases of pulmonary tuberculosis. The first patient died before a second sample could be obtained. The second patient died eleven days after the sample with negative albumin was examined, but two subsequent examinations were made before the death of the patient, giving albumin 16% and 24% respectively, with tubercle bacilli very numerous. The third case gave albumin 1% and 1½% on subsequent examinations and appears to be at least temporarily an inactive infection. All three of the specimens giving negative albumin in the presence of tubercle bacilli have been small and rather unsatisfactory samples. The find-

ing of negative albumin where tubercle bacilli were present has not been duplicated in any case in our series.

*13. In every instance where albumin was found below 2% in the presence of tubercle bacilli, duplicate samples have been asked for. Second samples have generally shown albumin in larger quantities. One case gave as high as 70% within a week following a sample below 2%. It has been quite evident that most of our cases with such low albumin have been admixtures of saliva or other secretions not derived from the tuberculous lesion. Four cases have given below 2% albumin with tubercle bacilli present on two successive examinations. One of these has been previously referred to under *12. Another gave 6% albumin on a subsequent examination and was no longer followed. The third was from a case of tuberculosis of five years duration in a man of 44 years, showing very slight symptoms. This case recently came to our notice and only two examinations have been made at the time of this writing. The fourth case is somewhat interesting because of having changed from tubercle bacilli present to tubercle bacilli absent on microscopical examination while we were following the case. The findings have been as follows:

Patient C. D., South Haven. Physieian, Dr. N. L. Goodrich.												
Date	10-25	11-12	11-20	12-4	12-10	12-19	12-27	1-7	1-16	1-24	2-5	2-17 2-28
Tb. Baeilli	+	+	—	+	—	—	—	—	—	—	—	—
Albumin	1%	1½%	Trace	24%	10%	—	16%	28%	—	—	8%	18% —

The patient is past 40 years and gives a history of having been treated and cured of tuberculosis at the age of 18 and again at 25 years. The present attack was of about 8 months duration at the time of our first examination. Dr. Goodrich has informed us that the rise and fall in albumin corresponds closely to her symptoms.

One other patient that has changed from an open to a closed case occurred in the practice of Dr. C. E. Skinner, of Howell. In this case the following results have been obtained:

Date	1-10	2-5	2-10	2-18	3-2
Tb. Bacilli	+	—	—	—	+
Albumin	32%	4%	8%	12%	36%

The finding of tuberele baeiilli occurred apparently toward the termination of a pneumonia and the concurrent pheumonia may be responsible for part of the first high albumin. However the case is not doing well and the prognosis should be gaurded at this time.

It appears that before reliable conclusions may be drawn from low or absent albumin findings,

assurance must be had that the sample examined comes from the area in question. We have been able to show from cases of open pulmonary tuberculosis that the bacilli may be found in saliva, in water used for gargling the throat and even water used for rinsing the mouth. Such material would obviously be relatively free from albumin. Further, tuberculosis in a certain portion of a lung does not exclude other pathological conditions in different portions of the respiratory passages. One patient actually furnished in the same day a sputum free from tubercle bacilli and albumin and another containing a fairly large number of tubercle bacilli and 8% albumin. Such conditions are probably rare but we believe the possibilities they present offer satisfactory explanation for the low or absent albumin findings in exception to the general rule.

In studying a large number of sputa in connection with the albumin determination one is impressed with the high percentage of negative albumins in the most probable non-tuberculous cases, while in cases with clear physical signs the albumin is present quantitatively as in the open cases. Albumin appears to be entirely independent of the presence or absence of tubercle bacilli or of their relative number. There appears to be no constant relation between pus and albumin in sputum. We have found many samples highly purulent to be free from albumin while others comparatively free from pus have been very high in albumin. As a rule a sputum with markedly disintegrated pus cells is associated with considerable albumin but even here we find many exceptions.

Up to the present time no satisfactory physiological explanation for the presence or absence of albumin in sputum under various conditions has been offered and in the absence of such the diagnostic and prognostic value of the determination must remain largely speculative.

The albumin in tuberculous secretions is undoubtedly of the nature of an inflammatory exudate and the quantity is a measure of the inflammatory reaction. The reliability of quantitative determinations, however, must be judged with due considerations for other substances such as saliva, nasopharyngeal discharges, bronchial secretions, vomitus and other materials that may enter into the composition of sputum, diluting or otherwise modifying the quantitative results.

Scott called attention to a comparatively low albumin finding in a case that terminated fatally within a short time after examination. We have encountered two similar cases and consider such findings in accord with our theory. A tuberculous lesion may give low albumin either because it is inactive or because the tissues are too weak to respond with proportionate inflammatory reaction. High albumin means a vigor-

ous reaction and such results generally though not necessarily follow extensive injury.

CONCLUSIONS.

Our findings indicate that albumin is present in the sputum of practically all cases of unquestionable pulmonary tuberculosis and that in over 80% of these the amount is above 10% by volume. Albumin is also present in all cases of pulmonary abscess, broncho and lobar pneumonia and pulmonary edema. In chronic rhinitis, pharyngitis, laryngitis, bronchitis and asthma albumin is generally absent or present only in traces. In acute conditions the findings are less constant. While an absence of albumin is the rule in all superficial inflammations of mucous membranes, abrasions or lacerations of the surface epithelium are occasional accompaniments to such cases and give rise to serous or bloody exudates that contain albumin in abundance. An absence of albumin we believe excludes active tuberculosis as the source of that particular sputum. This statement may seem radical in view of the fact that over 50% of the sputa suspected of being tuberculous, with tubercle bacilli absent show negative albumin. However, the opinion appears justifiable with the strict understanding that it does not apply to the patient as a whole but is limited to the source of the sample examined.

REPORT OF EXPERIMENTS TO TEST THE TOXICITY OF MOTHER'S MILK AFTER ADMINISTRATION OF ACETANILIDE.

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(From the Grace Whitney Hoff Laboratory, Women's Hospital, Detroit.)

Mrs. D., for the relief of a sick headache, took a wafer containing 4 grains of acetanilide and 1 grain of caffeine. This was at nine o'clock in the evening. At two o'clock the next morning, five hours later, she nursed her four months old baby. At 7:45, the same morning, the child died.

The physician who was called makes the following statement: "The baby was alive and apparently in perfect condition when the mother got up in the early morning, but when the mother went back to see that the child was covered she found it dead. The baby was well and happy the day before and had never been sick. The only cause of death that I could discover was the headache wafer taken by the mother the night before."

It is well known that milk acquires a foreign taste from changes in the food of the animal producing it. The peculiar taste of milk from cows fed on garlic is an example. This is proof

that foreign bodies may pass into the milk, although Holt believes that few of the drugs supposed to affect the child through the milk really do so. If the milk is poor in quality elimination of drugs is more likely to take place. The most important drugs known to be so eliminated are belladonna, opium and morphine, alcohol, the iodides and bromides, mercury only after prolonged use and then irregularly, most of the saline catharics, arsenic and the salicylates occasionally. Bismuth, antimony, zinc, lead and iron have also been found in the milk.

So far as could be discovered, the fate of acetanilide in the system is as follows: As soon as introduced it is rapidly absorbed and as rapidly excreted by the kidneys, disappearing within 24 to 36 hours after its administration. Acetanilide itself does not appear in the urine except after very large doses. It is represented by its derivatives, paramido-phenol and acetyl-paramido-phenol.

To ascertain whether acetanilide did appear in the milk of a nursing mother and if so, whether in sufficient quantity to cause the death of an infant, the following tests were made in the Grace Whitney Hoff Laboratory connected with the Woman's Hospital. The babies were put on artificial food and the drugs were administered to the mothers and specimens obtained as follows:

CASE 1, SALLIE.

Age of baby	Time of admin.	Dose
3 months	10:30 p. m., Jan. 25	Acetanilid gr. IV Caffeine gr. I
Specimen	Time taken	Result
Milk	9 p. m., Jan. 25	Control
Milk	2 a. m., Jan. 26	Negative
Milk	6 a. m., Jan. 26	Faint trace
Milk	9 a. m., Jan. 26	Faint trace
Milk	12 noon, Jan. 26	Negative
Urine	6 a. m., Jan. 26	Trace
Urine	12 noon, Jan. 26	Negative

CASE 2, SYLVIA.

Age of baby	Time of admin.	Dose
2 months	10:30 p. m., Jan. 25	Acetanilid gr. IV
Specimen	Time taken	Result
Milk	9 p. m., Jan. 25	Control
Milk	2 a. m., Jan. 26	Negative
Milk	6 a. m., Jan. 26	Faint reaction
Milk	9 a. m., Jan. 26	Negative
Milk	12 noon, Jan. 26	Negative
Urine	6 a. m., Jan. 26	Negative
Urine	12 noon, Jan. 26	Negative

Since it seemed possible that the decided color changes in Case 1 might be due partly to the combination with caffeine it was decided to give that patient acetanilide alone, to give Case 2 acetanilide and caffeine and to put a third patient on caffeine alone.

This third patient showed considerable variation in color of specimens on the addition of the reagents but no red tinge.

In Cases 1 and 2 the results in the second test were the reverse of those in the first, as follows:

CASE 1, SALLIE.

Age of baby	Time of admin.	Dose
3 months	9:45 p. m., Jan. 26	Acetanilid gr. IV
Specimen	Time taken	Result
Milk	9 p. m., Jan. 26	Control
Milk	2 a. m., Jan. 27	Negative
Milk	6 a. m., Jan. 27	Faint reaction
Milk	9 a. m., Jan. 27	Negative
Urine	2 a. m., Jan. 27	Negative
Urine	6 a. m., Jan. 27	Negative

CASE 2, SYLVIA.

Age of baby	Time of admin.	Dose
2 months	9:45 p. m., Jan. 26	Acetanilid gr. IV Caffeine gr. I
Specimen	Time taken	Result
Milk	9 p. m., Jan. 26	For control-trace
Milk	2 a. m., Jan. 27	Fainter trace
Milk	6 a. m., Jan. 27	Trace
Milk	9 a. m., Jan. 27	Trace
Urine	2 a. m., Jan. 27	Very faint trace
Urine	6 a. m., Jan. 27	Very faint trace

In this test, Case 2 shows a trace in every specimen, even in the control, and as the case reacted very slightly in the first test it was decided to give each of the two cases a dose of acetanilide alone for two nights in succession in order to determine whether or not the late positive reaction in Case 2 was due to accumulation. The results were as follows:

CASE 2, SYLVIA.

Age of baby	Time of admin.	Dose
2 months	9 p. m., Jan. 31	Acetanilid gr. IV
Specimen	Time taken	Result
Milk	9 p. m., Jan. 31	Negative-control
Milk	2 a. m., Feb. 1	Negative
Milk	6 a. m., Feb. 1	Negative
Milk	9 a. m., Feb. 1	Faint reaction
Milk	12 noon, Feb. 1	Negative
Milk	3 p. m., Feb. 1	Negative
Milk	6 p. m., Feb. 1	Negative
Urine	2 a. m., Feb. 1	Negative
Urine	9:15 a. m., Feb. 1	Negative
Urine	12 noon, Feb. 1	Negative

SAME CASE, SYLVIA.

Age of baby	Time of admin.	Dose
2 months	9 p. m., Feb. 1	Acetanilid gr. IV
Specimen	Time taken	Result
Milk	9 p. m., Feb. 1	Negative
Milk	2 a. m., Feb. 2	Negative
Milk	6 a. m., Feb. 2	Negative
Milk	9 a. m., Feb. 2	Negative
Milk	12 noon, Feb. 2	Negative
Urine	9 p. m., Feb. 1	Negative
Urine	6 a. m., Feb. 2	Negative
Urine	9 a. m., Feb. 2	Negative

It is very evident that there is no accumulation in this case. In the other case the test was of no value as the patient left the hospital after

the first administration, so the first case of all, Sallie, was given another dose to test for accumulation. This case was not entirely satisfactory as there had been an interval of four days between doses.

CASE 1, SALLIE.

Age of baby	Time of admin.	Dose
3 months	9 p. m., Feb. 1	Acetanilid gr. IV
Specimen	Time taken	Result
Milk	9 p. m., Feb. 1	Negative
Milk	2 a. m., Feb. 2	Negative
Milk	6 a. m., Feb. 2	Negative
Milk	9 a. m., Feb. 2	Negative
Milk	12 noon, Feb. 2	Negative
Urine	9 p. m., Feb. 1	Negative
Urine	6 a. m., Feb. 2	Negative
Urine	9 a. m., Feb. 2	Negative
Urine	12 noon, Feb. 2	Negative

There is no accumulation.

In all the foregoing experiments the reaction of the *urines* to the reagents was in each case definitely positive or negative, but the reaction of the milk specimens was not so satisfactory. The specimens from one patient were not uniform in color when first taken and there was considerable confusion after the addition of the reagents owing to the many shades and tints that were exhibited. It was decided that this might be due to the presence of the casein, so in the next and final set of experiments hydrochloric acid was added to each specimen and it was then boiled and filtered. With the comparatively clear filtrate thus obtained it was possible to be very positive about the reaction. The results in the final tests were as follows:

CASE 3, LILLIE.

Age of baby	Time of admin.	Dose
4 weeks	9 p. m., Feb. 6	Acetanilid gr. IV
Specimen	Time taken	Result
Milk	9 p. m., Feb. 6	Negative-control
Milk	2 a. m., Feb. 7	Negative
Milk	6 a. m., Feb. 7	Negative
Milk	9 a. m., Feb. 7	Negative
Milk	12 noon, Feb. 7	Negative
Milk	3 p. m., Feb. 7	Negative
Milk	6 p. m., Feb. 7	Negative
Urine	9 p. m., Feb. 6	Negative
Urine	6 a. m., Feb. 7	Negative
Urine	9 a. m., Feb. 7	Negative
Urine	12 noon	Negative
Urine	3 p. m., Feb. 7	Negative
Urine	6 p. m., Feb. 7	Negative

SAME CASE.

Age of baby	Time of admin.	Dose
4 weeks	9 p. m., Feb. 7	Acetanilid gr. IV
Specimen	Time taken	Result
Milk	9 p. m., Feb. 7	Negative
Milk	2 a. m., Feb. 8	Negative
Milk	6 a. m., Feb. 8	Negative
Milk	9 a. m., Feb. 8	Negative
Milk	12 noon, Feb. 8	Very faint reaction
Urine	9 p. m., Feb. 7	Negative
Urine	6 a. m., Feb. 8	Negative
Urine	9 a. m., Feb. 8	Negative
Urine	12 noon, Feb. 8	Very faint reaction

CASE 4, MOLLIE.

Age of baby	Time of admin.	Dose
5 weeks	9 p. m., Feb. 6	Acetanilid gr. IV Caffeine gr. I
Specimen	Time taken	Result
Milk	9 p. m., Feb. 6	Negative-control
Milk	2 a. m., Feb. 7	Negative
Milk	6 a. m., Feb. 7	Negative
Milk	9 a. m., Feb. 7	Negative
Milk	12 noon, Feb. 7	Negative
Milk	3 p. m., Feb. 7	Negative
Milk	6 p. m., Feb. 7	Negative
Urine	9 p. m., Feb. 6	Negative
Urine	6 a. m., Feb. 7	Negative
Urine	9 a. m., Feb. 7	Negative
Urine	12 noon	Negative
Urine	3 p. m., Feb. 7	Negative
Urine	6 p. m., Feb. 7	Negative

SAME CASE, MOLLIE.

Age of baby	Time of admin.	Dose
5 weeks	9 p. m., Feb. 7	Acetanilid, gr. IV Caffeine gr. I
Specimen	Time taken	Result
Milk	9 p. m., Feb. 7	Negative
Milk	2 a. m., Feb. 8	Negative
Milk	6 a. m., Feb. 8	Negative
Milk	9 a. m., Feb. 8	Negative
Milk	12 noon, Feb. 8	Very faint reaction
Urine	9 p. m., Feb. 7	Negative
Urine	6 a. m., Feb. 8	Negative
Urine	9 a. m., Feb. 8	Negative
Urine	12 noon, Feb. 8	Negative

END RESULTS.

In this last set of experiments the milk and all the urine secreted for thirty consecutive hours was obtained for the tests. The precipitation of the casein obviated the confusion in the color reactions.

In the 24 specimens of milk and 20 specimens of urine examined there was a very faint reaction in but three specimens, these reactions occurring in thirty hours after the first and fifteen hours after the second dose.

The babies began nursing as soon as the experiments were concluded and none of them showed any ill effects.

CONCLUSIONS.

Up to this time there is apparently no record of the finding of acetanilide derivatives in mother's milk. From this set of experiments it would seem that acetanilide derivatives are at times eliminated but that more frequently there is no trace of them. The quantity found in each case was so minute that it could only be detected by holding the specimen against a white background. The time of the first appearance of the reaction after the administration of a dose of 4 grains varied from seven to fifteen hours. The baby of Mrs. S. nursed five hours after the mother took the same dose and not again before its death. Was this mother's milk so poor in quality that it was more like an ex-

cretion, so that the drug was eliminated in greater quantity and more rapidly? This seems hardly reasonable since it is stated that the baby was well nourished and had never been sick.

The symptoms mentioned in the recorded cases of acetanilide poisoning are cyanosis, prostration, dyspnoea, excessive restlessness, increased perspiration and coldness of the extremities. Surely a mother would have noticed these marked symptoms if they had been present when she examined her baby 15 minutes before its death. There is not a recorded case of death from acetanilide poisoning without symptoms.

PELVIC INFECTIONS.*

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The frequency of pelvic infections, with their high mortality, makes this subject of sufficient interest to bring it up for discussion before our society.

We have primarily two classifications, viz: those occurring with parturition and those independently of it. It is probable that puerperal infection has occurred as long as children have been born. Many evidences are to be found showing that it existed, and that means of preventing it were adopted, among the primitive savages. Four hundred years before Christ, Hippocrates described cases of it so accurately that the words could well be read in a modern classroom.

Not, however, until the second half of the seventeenth century were the first authentic reports of the epidemic disease given. In 1660, in Paris, at Hotel Dieu, two thirds of the women delivered died. And so this terrible disease raged, until as late as 1842. Vienna statistics show that the mortality of the women varied that year with the months, from eighteen to thirty-one per cent.

And now at a time when only the larger number of deaths was a positive fact and everything else in question, unexplained and doubtful, Semmelweis, a young assistant in the clinic at Vienna, as the result, not of accident, but of close observation, hard work and study, announced, in 1847, that puerperal fever is caused by the absorption into the blood, from the genitals, of *decomposed animal matter* from any source; that the hands, or any article brought into the genitals, may be the carriers of same. If, for the words *decomposed animal matter*, be substituted the word bacteria, the definition of puerperal sepsis is perfect as we understand it today.

With the cause he sought the remedy and instituted the washing of hands, cleansing of fin-

ger nails, plus the use of chlorine water or chloride of lime solution. The results were dazzling. The following year, 1848, the mortality dropped to 1.27%. To Semmelweis, then, an obstetrician, is due the credit of pointing the correct way to modern antisepsis and asepsis, years before the germ theory was born.

TYPES OF PELVIC INFECTIONS.

Since then we have come to recognize many types of pelvic infection, the great majority of which are covered by gonorrheal and puerperal infections. Others are the parasitic, external, cutaneous and glandular groups. In order that we may get a complete and clear conception of the way in which different forms of pelvic infections are developed and of their treatment, we will endeavor to study them, not according to the classification of that famous pair, pelvic peritonitis and cellulitis, by which the evolution and treatment were so long clouded, but according to our present knowledge of pathology, bacteriology, symptomatology and individual resistance.

I have here some charts prepared, showing fairly well the various types of pelvic infections, how they spread and how to differentiate them: viz.

MODES OF TRANSMISSION:

Exogenous.

Endogenous.

TYPES OF INFECTION—(Bacteria.)

Sterptococcic pyogenes.

Diplostreptococcus puerperalis.

Stereptococcic pyogenes.

Diplococcus lanceolatus pneumoniae.

Staphylococcus aureus and albus.

Bacillus coli commune.

Gonococcus of Neisser.

Bacillus pneumoniae of Friedlander.

Bacillus pyocyaneus.

Bacillus proteus.

Bacillus aerogenes capsulatus.

Bacillus fusiformis and spirilla (hospital gangrene).

Bacillus typhosus.

Bacillus tetani.

Bacillus anthracis.

Bacillus diptheriae.

Bacillus influenzae.

Chancroid Bacillus of Darcrey.

Tuberculosis.

ATRIA OF INVASION:

Vagina.

Cervix.

Uterine Surface.

Tubes.

Peritoneum.

Circulation.

ROUTES OF TRANSMISSION:

Lymph spaces.

Lymph vessels.

Blood vessels.

Continuity of tissues.

This paper will deal principally with infections, following parturition (abortions, miscarriages, curettements) and gonorrhea.

Puerperal infection is a surgical wound infec-

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tion, the same germ attacking the structure and producing the pathology; many variations existing, however, depending upon the atrium and type of infection, demand special consideration.

The most common atrium of puerperal infection is through the vagina. The only wonder is that it does not occur oftener since these are lesions in a zone that is extremely hard to keep aseptic. The reason that infection does not occur oftener is that the field offers a high grade of resistance, which nature prepares by the coffer-damming, infiltration, edema, and swelling, which precedes parturition. Hence the rarity of infection of the cellular tissue of the perineum and vagina.

The next common field of infection in this region is through the lacerated cervix, a structure more highly supplied with lymphatics than any other part of the body. These lymphatics lead to the cellular tissue of the broad ligaments. Tissue richly supplied with lymphatics admits of frequent and rapid transmission of infective material.

Another field of infection, is the uterine cavity proper (at placental attachment, or following curettement). Here we have—what? An open wound, leading directly into the blood stream with an excellent opportunity for the development of a thrombophlebitis. An effort has been made to divide infections clinically into three classes:

Sapremia, meaning septic intoxication.

Septicemia, meaning absorption into the blood of living ferments (bacteria), bacteremia.

Pyemia, meaning pus in the blood, metastatic bacteremia.

This classification should not be made since these infections do not exist alone but are combined.

CONDUCT OF INFECTIONS.

Now as to the conduct of different infections. Among the infections that occur independently of parturition, mention is to be made of the colon bacillus vaginal infection, which is found in children, producing a discharge of pus, and lasting fifteen or twenty years. Pneumococcal infection, too, is common in the vagina of children; but the most important, on account of its frequency and severity, is gonorrhea.

The micro-organism of gonorrhea does not produce a cellulitis or a phlebitis. The Neisserian infection having once entered the tube, which it does only by continuity of tissue, following the mucous membrane from the vagina through the uterus to the tube, produces a pyosalpinx, destined always to be one. Both ends are sealed, the uterine end being closed by the peritubal inflammation and the distal end by agglutinations of the fimbriae.

In affections occurring with parturition we have, generally, either a staphylococcal, strep-

tococcal or colon bacillus infection. The latter, when present, usually is associated with the streptococcus or staphylococcus.

An infection of staphylococcal origin passes through the lymph spaces slowly, often arrested in loco, producing circumscribed abscesses in the uterine body, a favorite location being the cornu, or a circumscribed accumulation of pus in the broad ligaments, or the cellular tissue of the peritoneum. The condition is not unlike those infections so common on the body surface—boils, pustules, etc.

How different from the conduct of either the gonococcal or the staphylococcal infections is the one of streptococcal origin. These latter are extremely fatal, and seldom localize. They pass so rapidly through the blood stream that when injected into the uterus of an animal the organism has been demonstrated to be six minutes later in the liver.

CLINICAL FINDINGS.

With these truths in mind then, let us see what we find clinically. A woman is confined, or has an abortion, or a curettement. The next or the second day she has a chill with temperature 104 degrees or more, pelvic pain, as a rule, no vomiting. Within three or four days she dies, or the chills recur. They will continue for weeks and the pain increase in severity. Upon vaginal examination we find the uterus is fixed, and on one or both sides is a hard mass, fixed and immovable. The whole thing is as if set in masonry. What is the matter? An infection through the cervix extending into the cellular tissue and involving the broad ligaments. Aside from the general rules for treatment of all pelvic infections, which will be discussed later, what is to be the management of the case? With the formation of the fluctuating abscess, simply incise and drain. That is all; treat the same as an abscess of the breast or thigh.

Another clinical picture: Infection of the veins on the placental base—infection of the uterus. The day following delivery patient has a normal temperature, feels well until end of first week or as late as the second or beginning of the third, and one believes the patient has practically recovered, when there is a chill, a choking sensation, with interference in the breathing, and a sense of impending danger. The doctor is called and finds the temperature at 105 degrees, heart on a rampage, patient anxious and restless. A primary clot has been dislodged, and very soon the patient dies; or, following the chill there is a temperature ranging from subnormal to 105 degrees. The fever pursues an irregular course with marked remissions; pulse is rapid, 110 to 150. There is no evidence of metastasis; abdominal findings are negative, and in the pelvis there is no ten-

derness. The uterus is movable and there is possibly a slight indistinct thickening. In fact, though, all physical findings may be negative, and one may assume only from the clinical history that she has had a vein infected.

The surgical management has not as yet been settled. It is my opinion that the pelvis should be left severely alone, since in the rapidly advancing thrombosis we are powerless to stop the process, while in the localized types which are not actively virulent, the body resistance can be fairly well depended upon to master the situation. I would, however, recommend the use of autogenous vaccines, also as a preventive measure patients be allowed to move about in bed very early and very freely after delivery.

In another variety to be considered, following parturition or abortion, we have infection of the uterine cavity surface, passing on upward to the next surface by continuity, an infection of the mucosa of the tubes. When the infection has reached the tubes, usually the fimbriae becomes agglutinated, and through the lymphatics that lead back again into the broad ligament, the process terminates in the ligament. In some cases, however, the infective material passes along the surface of the fimbriated end of the tube into the pelvis, causing the only true type of pelvic peritonitis, except from a perforated uterus or a ruptured pus tube a like result will be obtained. This is a surface infection of the peritoneum and has not anything like the virulence, nor does it require the same treatment that the subperitoneal infections do.

In the subperitoneal infections it is useless to perform a laparotomy, because one cannot get into the subperitoneal cellular tissue where the pus is situated; while in the true pelvic peritonitis, all one needs to do is to provide drainage through a tube. This procedure is of much value and can best be accomplished by opening the Douglas pouch, and letting the fluid escape through the vagina. A sack of this kind cannot be enucleated as it is only pelvic peritoneum. Abscess in the cul-de-sac from any cause should be incised and drained.

In gonorrheal pus tube the only treatment of any use is extirpation. Drainage is useless, since the tube, having its diseased mucosa and both ends sealed, only refills, and unless they are removed, the patient, in spite of any conservative measures, goes through life a partial or complete invalid. I repeat, that without a mutilating operation complete recovery in these cases is about the rarest thing in surgery. The physical signs may be so slight that the patient is often regarded as a victim of neurosis, and it is only upon opening the abdomen that one finds justification for her complaints. In such cases operative measures are quite successful, and, freed from the chronic pains, the nervous system may return

to the normal condition. With hydrosalpinx (which never follows gonorrheal infection but is one of the end results of other infections, streptococic and staphylococic, which have undergone such changes as to become sterile) freeing the distal end of the tube and stitching the ends of the fimbriae so as to avert them produces an ectropion, whereby one preserves the possibility of pregnancy, since the relief of tension reduces the congestion, and the uterine end of the tube again becomes patent.

ABORTIONS.

In dealing with an abortion that came on without being induced, that is, without having any infective material carried into the uterus to induce it, treat it as an abdominal wound—keep the hands out, make no examination, never use a douche, protect the vulva with antiseptic dressings, and let the patient alone.

With induced abortion one has an entirely different thing. Here, as early as possible, dilate the cervix, and without laceration clean out the uterus of every portion or remnant, but never cross the threshold of the vagina until ready to go to the dome of the uterus.

TREATMENT.

Treatment of all pelvic infections is based upon general principles. Everything that will improve the woman's general health will help her throw off the disease, and the attendant should count no effort lost that will increase her resistive powers. Nourishing food is necessary; fresh air is important; sleep is a prime necessity; visitors are excluded; and in puerperal cases nursing of child stopped. An occasional laxative is ordered in prolonged cases. For the fever nothing need be done, excepting cold packs or ice bags; bathing is too fatiguing; medicines are very sparingly used, yet it is my desire to mention one old but very valuable drug, that is not used nearly as much as it should be. I speak of ergot. It has been my custom to use Ergotole, each minim of which represents $2\frac{1}{2}$ grains of select black Spanish ergot. This, given hypodermically every two hours, in doses varying from 15 to 45 minims, its effect is at the maximum in about 30 minutes and lasts one hour. It is particularly indicated in all the bacteraemias before pus formation, being a powerful stimulant to the vaso-motor centers, causing a tonic spasm to the muscular walls of the blood vessels accompanied by rise of arterial pressure and slowing of the heart beat. Of course, this, like other therapeutic agents, is only to be used in conjunction with proper surgical measures. In the acute stages vaccine should form an essential part of the therapeutic treatment and should be instituted early. A bacteriologic diagnosis should be made. A blood culture with a two or four days incubation will usually make it possible, even when the culture

from the contents of the uterus is made. The latter procedure, however, should never be neglected. In cases in which the temperature does not fall but remains stationary after a fair trial of the vaccines, there is usually a walled off pocket of pus present, which if found and opened, will be followed by a positive phase and a prompt fall of temperature to normal.

Antistreptococcic serums have been found not to be as useful as was hoped for, but each dose of vaccine may be alternated with a dose of antistreptococcic serum. Large amounts of water introduced into the body are useful in supporting the embarrassed heart, diluting toxins, and promoting excretions.

Local treatment is absolutely contra-indicated in the acute stage. Internal examination is made very gently, except at the very outset, when portions of the retained secundines, or a blood clot, is present. They are to be removed preferably with the finger; also, a copious irrigation of the uterus with an iodine solution may be given. The cul-de-sac is never irrigated; pus tubes are enucleated not earlier than a year and, if of streptococcic origin, often several years must elapse before a perfectly safe operation can be done.

In meta-static bacteremia-(pyemia), collections of pus, whether in the pleura, joints, or peritoneal cavity, must be evacuated on ordinary surgical lines.

And finally, in the care of these cases, I would emphasize the importance of bearing in mind the intimate relation of the genital tract to the terminal reservoirs of the urinary and alimentary tracts, which permit of easy communication of disturbances and pathological conditions.

919-922 J. Henry Smith Bldg.

SYPHILIS OF THE NERVOUS SYSTEM.*

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Contrary to the general belief that syphilis of the nervous system was not recognized in the past centuries, except as it occurred in connection with syphilitic disease of the osseous tissue in close proximity with the cerebrospinal nervous system, we find in the oldest monographs on syphilis references to conditions which were undoubtedly known to be syphilitic disease in the central nervous system. Long before the greater epidemic of syphilis in Europe took place was paralysis of the extremities attributed to syphilis of the nervous system by a number of Mexican physicians. Paracelsus in his work 'Von der Franzoesischen Krank-

heit" in 1530 describes brain syphilis. In Morgan's dissertation in 1766 we find a description not only of syphilitic disease of the brain but also of gummatous leptomeningitis and syphilitic cerebral-endarteritis. About the same time Balloy describes hemifacial palsy due to syphilis and so there are many other references until finally in the nineteenth century Schützenberger, Griesinger, Westphal, Virchow, Heubner and Charcot paved the way to our knowledge of syphilitic disease of the nervous system of the present time. Of particular interest in this connection was the work of Virchow on syphilitic meningitis and gummata and that of Heubner on syphilitic disease of the vascular system of the brain.

It has long been recognized that syphilis is an infectious disease and numerous varieties of fungi and bacteria have been described by various investigators as the specific organism of the disease, but not until Schaudin found the *Spirochaeta pallida* was there much interest shown in these various claims. Schaudin's discovery was promptly confirmed by Eposchen, Busche, Fischer, Metschnikoff and Raux, who demonstrated the specific organism in the primary lesions and in the liver, spleen and the blood in acquired and congenital syphilis. Very soon was the organism demonstrated in the central nervous system and in the spinal fluid in acquired and congenital syphilis and at this time no one doubts that the *spirochaeta pallida* is the specific organism of syphilis wherever it may occur and in proof thereof is its constant existence in fresh syphilitic products and its absence in nonsyphilitic disease. Until quite recently pure cultures of the syphilitic organisms and the production of syphilis by these had not been successfully carried out, but Noguchi has accomplished this.

While it is somewhat difficult to judge accurately as to the frequency of syphilis of the nervous system, one working in the field of neurology and in a neurologic clinic, is impressed with the importance of the more recent laboratory tests for syphilis and the routine application of them in all cases irrespective of the symptom complex which they may present. There is probably no field in medicine wherein similar diseased pictures may arise from so many different causes as in the domain of the nervous system or where a single etiological factor may give rise to so many dissimilar pictures. It is only within comparatively recent times that apparently dissimilar diseases have been grouped under one etiological head. The dissimilarities in clinical expression within the nervous system have been so striking as to obscure the fundamental underlying causative factor. The dividing lines between the lesions of hereditary syphilis, acquired syphilis and so-called meta-syphilis are becoming slowly prominent and al-

*Read at the quarterly meeting of the Genesee County Medical Society, January 27, 1914.

ready it seems strange that spinal and cerebral syphilis on the one hand, should ever have been considered different from tabes and general paresis on the other. Since we believe that tabes and general paresis not only rest upon a syphilitic basis but are due to the activity of the spirochaeta pallida, the variety of syphilitic disorders showing clear clinical entities has been enlarged both in the neurological and in the psychiatric clinic.

Acquired syphilis of the nervous system, early or late, makes up a large per cent. of the clinical material in a neurological practice. Erb gathered from 10,000 cases in his private practice in men over 25 years old exclusive of tabes 21.5 per cent. who had had a syphilitic infection. Statistics collected by the Prussian government in 1900 showed 11,000 cases of recent syphilitic infection in Prussia. Neisser's calculations showed that every fourth man who marries after the age of thirty has had a syphilitic infection.

The frequency of syphilis of the nervous system is shown by the statistics of Nonne. In five thousand five hundred patients treated in private practice for nervous disease, there were 85 cases of syphilis of the nervous system. Out of 72,180 admitted in the clinic for internal medicine there were 282 diagnosed as syphilis of the nervous system. In another medical clinic there were 104 in 9,936 patients diagnosed as syphilitic disease of the nervous system by the same authority. All of these either gave a history of a syphilitic infection or presented typical clinical pictures. The Wassermann test was at this time not used. From this, one may deduct that in a neurological practice 1.5 per cent. of the cases are syphilitic in origin, while in the general medical clinic 0.4 per cent. of the patients are suffering from syphilitic disease of the nervous system. In all of these figures tabes and general paralysis are excluded. These numbers would be much greater if the Wassermann test could have been applied. Fournier found in 1,085 cases of syphilitic disease of the nervous system 77 cases of spinal, and 406 cases of cerebrospinal syphilis, according to the general statistics cerebral syphilis is about eight times more frequent than spinal syphilis. Erb's experience is that tabes is ten times more frequent than any other syphilitic disease of the spinal cord. The statistics of some of the larger clinics of Europe show a marked increase in the occurrence of syphilis of the nervous system in the period between 1903 and 1907.

The view that syphilis attacks the nervous system largely in the tertiary period has long been abandoned. Nannyn showed that 40 per cent. (out of 335 cases) occurred in the first three years and that from this time on the number of cases diminished from year to year and after ten years it is exceptional when the

central nervous system becomes diseased. It is the experience of nearly all neurologists in this country and abroad that many cases occur between 1½ months to 1½ years after the infection. (Tabes and paresis being excluded).

Clinically and with reference to the pathological anatomy of syphilis of the nervous system we have formerly and do now recognize two distinct types: 1. The symptom complex due to pathological changes in the vascular system of the cerebrospinal nervous system and 2, that clinical picture due to the formation of gummata. The former may exist independently. In fact, only one or a few vessels in a single locality may be involved. It is doubtful that a gumma formation can take place without the involvement of the vascular system, it being primarily a periarteritis gummosa. The vascular form of cerebral syphilis presents clinically the symptom complex due to an arteritis (Endarteritis, periarteritis). This is separated into an inflammatory process such as we find in the larger vessels of the brain membrane and is characterized by a cellular exudate (periarteritis) and the noninflammatory form where the exudate is absent and there are no other anatomical changes save those in the vessel walls (Endarteritis). The latter presents in a general way quite a constant symptom complex, the former, on the contrary, great variations depending upon the extent and location of the pathological process. So in cerebral syphilis, whether it is a meningitis, a meningoencephalitis or a meningoencephalitis gummosa, or the process is a basilar meningitis with its characteristic cranial nerve palsies or a lesion of the meninges of vertex with epileptiform seizures there is only an anatomical difference and a difference in the extent of the lesion. The same holds good with the isolated gumma.

The present conception of spinal syphilis (meningomyelitis syphilitica) is based upon the same principle as brain syphilis. The clinical differentiation of the vascular or the meningomyelitic form is less apparent, while there are cases in which the vascular changes predominate; in others it is difficult clinically to separate this form from the more extensive degenerative process. The symptoms are of course dependent upon localization; those dependent upon meningeal irritation, root symptoms or cauda symptoms or those resulting from a transverse lesion and the systemic degenerations. Pathologically one may differentiate pachy and leptomeningitis chronica fibrosa which may be accompanied by a central softening or changes in other parts of the cord (meningomyelitis). Possibly we may separate spastic paraplegia and postero-lateral sclerosis or rather the clinical picture of these from that of meningomyelitis. Oppenheim and Leyden-Goldscheider contend that both of these clin-

ical pictures are pathologically a meningomyelitis syphilitica. The intermittent claudication of (claudication intermittens de la moelle épinère). Dejerene with exaggerated tendon reflexes and Babinski toe reflexes terminating finally in the clinical picture of spastic paraplegia syphilitica belongs primarily to the vascular form of spinal syphilitic disease. Localized thickening of the dura mater without gummatous formation (pachymeningitis hypertrophica) causing nerve root irritation and compression symptoms is often responsible for indefinite neuralgic pains, hyperesthesias and paresthesias. The so-called Kahler's disease and the progressive muscular atrophies following a spinal root neuritis are all primarily of vascular origin, either of the vessels of the meninges or a perivascular infiltration of the epineurium. Independent syphilitic affection of the peripheral nervous system is also observed and not infrequently isolated nerves are involved. This is particularly true of the cranial nerves (facial and trigeminus). So in trifacial neuralgia or in other localized neuralgias it is of utmost importance to eliminate syphilis before any medical treatment is begun and certainly before operative interference is advised.

Since we know that the spirochaeta is still active in both tabes and paresis the theory of parasymphilitic or metasymphilitic disease is no longer correct and both of these conditions, no doubt, will soon find their places under the head of syphilis of the nervous system.

Probably the most important and the most frequent symptom of syphilitic disease of the nervous system is the loss of the pupillary light reflex; it is almost invariably due to syphilis of the nervous system (celliospinal ganglion). The slightest inequality of size or reaction of the pupils should always arouse our suspicion of syphilis of the nervous system. Even though the Wassermann test on the blood and spinal fluid is negative, it is fairly good evidence that the patient has gone through a syphilitic infection some time. I have frequently seen inequality in the size of the pupils in pulmonary tuberculosis or tuberculous meningitis, but in my opinion loss of the pupillary light reflex does not occur in nonsyphilitic brain tumors. In Ziehen's clinic in the Charité hospital of Berlin all cases of arteriosclerosis with loss of pupillary light reflex and all chronic alcoholics with the same symptom gave a positive Wassermann test on the blood or spinal fluid. E. Forster states that he has never observed the Argyll-Robinson pupil in cases of alcoholism even though the Korsakoff symptom complex was evident without a positive Wassermann reaction.

In 1858 consecutive cases of various nervous disorders admitted in the Neurological Clinic of the University Hospital (Dr. Camp's service) there were 160 cases in which the Wassermann

test on the blood or spinal fluid or on both was positive, showing a marked increase in the percentage when compared with the above statistics where the Wassermann test was not in use. These cases are tabulated as follows:

Nervous Disease	Total No.	Wassermann test. Blood	Spinal Fluid
Tabes	50	29+	50+
Taboparesis	4	3+	4+
General paralysis	21	15+	21+
Cerebrospinal syphilis	17	12+	17+
Meningoencephalomyelitis			
Endarteritis and			
Periarteritis gummosa			
Cerebral syphilis	23	17+	33+
Meningoencephalitis			
Endarteritis and			
Periarteritis gummosa			
Spinal syphilis	5	2+	5+
Meningomyelitis			
Myelitis and			
Periarteritis gummosa			
Brain tumor	3	3—	3+
Hydrocephalus cong	1	+	+
Spinal tumor	2	1+	2+
Syringomyelia	1	+	+
Spastic paraplegia	4	1+	3+
Traumatic myelitis	1	1+	1+
Hematomyelia	1	+	+
Facial palsy	1	+	—
Trifacial neuralgia	6	6+	—
Multiple neuritis	3	3+	—
Meralgia paresthetica	1	—	+
Neuro-fibromatosis	1	+	—
Imbecility	1	—	+
Epilepsy	3	3+	—
Migraine	2	2+	—
Hysteria	4	4+	2+
Neurasthenia	2	2—	2+
Psychasthenia	2	2—	2+
Traumatic neurosis	1	—	+
Muscular atrophy	1	+	+
Paralysis agitans	1	—	—

(with neosalvarsan)
(marked improvement)

A number of cases which came under the writer's observation may be of interest in connection with the above tabulated group. A young woman, 25 years of age, with a negative family and personal history presented herself for treatment of a condition which she said she knew is general paralysis of the insane. The patient in question was a highly intelligent woman and related that beginning with her tenth year she was impressed with the idea that some day she would lose her mind. The idea had persisted until three years ago when it became more definitely formulated in that the form of mental disturbance would be general paralysis of the insane. She also had a fear that her children would have the same disease.

In this case the neurological and psychological, as well as the general physical examination was entirely negative and the diagnosis of psychasthenia was established with a guarded prognosis. The patient insisted that this diagnosis was wrong and persisted in her belief that she would soon lose her mind, the result of paresis. From previous experience I have learned not to disregard a patient's opinion of her own condition entirely and proceeded to make a Wassermann test on the blood and obtained some spinal fluid for examination. The blood was xx positive. The spinal fluid gave a positive Wassermann reaction and a cell count of 125 per ccm. The patient was treated accordingly and made a prompt recovery. By this I mean the obsession disappeared and the Wassermann test on the blood and spinal fluid became negative. Another patient threatened to commit suicide the moment the first symptom of approaching insanity appeared which she suspected. She was a woman of 30 years of age and otherwise normal save for the idea of insanity which would come to her sooner or later. There was no reason to suspect syphilis either from the history or from personal observation, but following the same rule as in the preceding case the blood and spinal fluid were examined and both gave a positive Wassermann test. The patient recovered under the proper treatment. A third patient presenting the symptom complex of hysteria, a case of long standing and unsuccessful treatment. The history of the case was not unusual there was no evidence of syphilitic infection. While I always hesitate to do a lumbar puncture in cases of hysteria, I ventured to do so here and the spinal fluid gave a positive Wassermann test; the blood was negative. Treating both the hysteria and luetic infection the patient made a good recovery. Three cases of neurasthenia of long standing with negative histories made good recoveries after the luetic infection was recognized by laboratory tests and the proper treatment applied.

In view of the foregoing illustrations one becomes aware of great difficulties in the differential diagnosis. Of course we determine the existence or non-existence of a syphilitic infection through the history, Wassermann test, etc. Nevertheless, one must refrain from associating in every case the nervous disease with the syphilis and take the symptoms as manifestations of the luetic infection. It is self-evident that with the frequency of syphilis a patient suffering from hysteria, neurasthenia, multiple sclerosis, etc. may formerly have had syphilis. Not only this, but as Virchow emphasized there is a predisposition in the neurosis itself based on a *locus minoris resistentiae*. On the other hand, the syphilitic infection may have its effect upon the nervous system in reducing the resistance and prevent recovery from the nervous disease.

In the same manner may a trauma precipitate a latent cerebral syphilis which might easily for a time remain concealed under the symptom complex of a traumatic neurosis.

The diagnostic value of the examination of the spinal fluid in syphilis of the nervous system is dependent upon cytological, chemical and biological changes. The cytological change is most marked in the greater number of lymphocytes. While there are also other cells; large mononuclear cells and endothelial cells or possibly genuine plasma cells, besides polynuclear cells in greater or lesser numbers, eosinophiles and red blood cells, the normal spinal fluid is comparatively free from cellular elements. In cerebrospinal syphilis there is an increased number but not to such an extent as one finds them in paresis or tabes. The polynuclear cells are significant of an exacerbation of a chronic meningitis or an acute process. It is needless to say that a lymphocytosis is not significant of syphilis and may occur under various other conditions of the central nervous system but usually not so constant or so marked as in tabes or paresis.

In the chemical examination it is principally a question of determining the albumen content. An increased globulin reaction (Nonne-Apelt phase I) corresponds with an increased albumen content (Nonne-Apelt phase II).

Increased globulin has been found only in organic disease of the nervous system. Nonne found it increased in 96 per cent. of the cases of syphilis of the central nervous system, while in 20 per cent. of secondary syphilis and 42 per cent. of tertiary in which there were no manifestations of syphilis of the nervous system. In the so-called metasymphilitic disease an increase in the globulin is constant. The method of Noguchi has no practical diagnostic value.

In the biological examination of the spinal fluid in syphilis of the central nervous system it is a question of a positive or negative Wassermann reaction, with 0.4-0.8 ccm. of spinal fluid it is almost invariably positive in syphilitic disease of the nervous system, while with 0.2 ccm. this reaction is less constant in cerebrospinal syphilis than in paresis. In syphilis without manifestations of syphilitic nervous disease the Wassermann reaction on the spinal fluid is constantly negative according to the observations of Boas, Hauptman and Holzmann.

The positive Wassermann reaction is as a rule present in the sixth week after the syphilitic infection. In the secondary period it fails in about 10 per cent., although some authorities claim 99 per cent. positive Wassermann reaction in the secondary stage. In the tertiary period from 70 to 80 per cent. give a positive reaction. The figures are practically the same in syphilis of the nervous system, however, in my own observations there have been a great

many cases of tabes giving a negative Wassermann reaction of the blood and more often than in general paralysis.

There is still a great difference of opinion as to the most valuable therapeutic measure in syphilitic disease of the central nervous system. It is generally believed that the usual methods applied in treating syphilis are inactive in syphilis of the nervous system and various methods for interspinal medication have been suggested. Personally, I have seen some remarkable results in cerebrospinal syphilis, as well as in tabes with subcutaneous and intravenous medication systematically carried out. On the other hand, there have been some drastic results from interspinal injection. The intradural injection of salvarsanized serum recently suggested appears to be less dangerous.

A RETROSPECT.*

EDWARD T. ABRAMS, A.M., M.D.
DOLLAR BAY, MICH.

If we would know, realize and appreciate the full freedom, the large liberty, and the perfect government growing out of a democracy, we must of necessity go back over the historic ground of the past; we must mingle with the founders of our country; we must wander through the various scenes and partake, in some degree at least, from Imagination's Casket, the privations, the sufferings, and the hardships of the "First Settlers." And when all this has been done we must cross the broad Atlantic to the home of feudalism and there follow the well-nigh imperceptible thread back, and back, until we find ourselves groping in the gray dawn of the unknown. And so it is in studying the advancement made in this noble profession of ours. Surgery, together with all its allied and related branches, seems to us today so matter of fact, so simple and self-evident in all of its details, that we are apt to take it as an undeniable fact that this bacteriological perfection, which is the common knowledge of us all, has always existed; but not so. If we would know, realize and appreciate the perfect technic of today we must go back over the path trod by our predecessors.

In no department can this be more truthfully said than in obstetrics. The very common sense and matter of fact precautions practiced today in this branch of medicine is one so axiomatic to the average mind that we are oftentimes in danger of overlooking the struggles, ridicules and acrimonious debates through which the contentions passed before the present perfected state and conditions were attained, and at last became the accepted dictum and belief of the entire medical profession.

Would we know, realize and appreciate what this means, and has meant, to the world of mothers of the past and future we must let our memories and imaginations have full sway as they sweep over the vast field of suffering, invalidism and death previous to the adoption of anti-septisism and aseptisism in the general practice of obstetrics.

More than half a century has rolled away since the memorable Friday evening in Boston when our own Oliver Wendell Holmes presented his epoch-making paper on the "Contagiousness of Puerperal Fever." Truly it was an immortal essay. He startled his hearers with the sentence, "The time has come when the existence of a private pestilence in the sphere of a single physician should be looked upon, not as a misfortune, but a *crime*." This, gentlemen, was five years before Semmelweis, a young assistant working in the maternity at Vienna, was laughed to scorn and to the mad house because he persistently held that every case of puerperal fever was caused by the absorption of putrid animal material.

These two contentions of Holmes and Semmelweis, standing side by side, marked the heavens with the "first steps of day." It was the beginning of the gray dawn of the morning that was breaking in upon suffering humanity, and which was destined to unfold unto the bright, clear light of a grand and glorious day. We know today that puerperal fever is puerperal infection; we know how to prevent it, and we cannot, by any modern sophistry, shift the responsibility.

Those of you who have the Fourth Edition of Playfair, issued in 1882, will find that while he included all puerperal fevers under the head of puerperal septicemia he nevertheless admits that "There were facts difficult to reconcile with theory and for which we were unable to give a satisfactory explanation." In the year 1883, Thomas More Madden, speaking before the British Medical Association, said that "it did not matter by what term or terms we distinguished the malady, provided we recognized that there was a specific infectious disease consequent on parturition." Kindead, Professor of Obstetrics in the University of Dublin, taught that "such fever, from whatever sources arising, except septicemia, is a specific infectious disease, and like those diseases, occurs sporadically and epidemically."

It was during the winter of 1883 and 1884 that puerperal fever was brought up prominently before the profession of America by being thoroughly discussed by the New York Academy of Medicine in December of 1883. It was at this meeting that Thomas defined puerperal fever as 'an infectious disease due, as a rule, to septic inoculation of wounds of the genital tract.' It was at the next meeting that For-

*Read before the Houghton County Medical Society.

dyce Barker, that grand and commanding figure in American medicine, took part in the general discussion; but unlike Polk and Thomas, who had turned their faces toward the rising sun, Barker saw it sinking slowly in the west and beheld only the dying day. He clung to the old dogma of a specific infectious disease and ridiculed the advanced ideas of his colleagues as follows: "Does every parturient woman in performing the function of maternity, like the scorpion that carries in its tail an agent for suicide if death be threatened by fire, generate an equally fatal poison in a corresponding locality? If so, then the state should make child bearing a penal offense for families who do not have means enough to carry out elaborate antiseptic requirements." While, perhaps, a majority of the profession held that puerperal fever was a septic poison, no one seemed to have a very clear or definite idea as to the nature of the poison. Carbolic acid had been used as a disinfectant in the Copenhagen Maternity since 1870 as it had also been by many obstetricians.

But the time was ripe to put away the time-worn dogmas—to bury forever in the grave of the historic past the ancient conceptions of the causative factor of the slayer of mothers, and the despoiler of homes, and in its place to establish the life-saving gospel of surgical cleanliness. The first demonstrable crusade was inaugurated in the New York Maternity. The mortality in this hospital in 1881 was 2.36% and was thought to be exceedingly low. In 1882 it was 3.25%. During the year 1883 out of 345 parturient women 30 had died, and the morbidity was something enormous. Toward the end of this year the mortality had so greatly increased that one woman in four delivered died.

It was in October of this year that radical and systematic changes were made in this maternity. To no man in this country is more honor due than to Dr. Henry Garrigues, of New York. When he assumed charge of the New York Maternity in the fall of 1885, he brought to the service the fullness and enthusiasm of maturity, together with the thoughtful, calm and energetic doggedness that always marks a man as being one that is and will be superior to the emergency. He laid down principles broad in their comprehension, far reaching in their influence, and which were to be brilliant in their achievement. Sulphur was freely used for fumigation; soap and water followed by the application of a strong solution of bichloride was the menstrum with which the floors and walls received new baptism of asepsis, and in order that the new baptism might become efficacious and entirely supplant the old, the floors of the ward were sprinkled several times a day with bichloride solution. Visitors were

not allowed to visit the wards; the attendants were not permitted to visit other hospitals nor to enter the dead-house. Each patient on entering received a bath and clean linen. The abdomen was washed with soap and water, as was also the genitals, followed in the later by bichloride. The vaginal douche was used in every case, using about two quarts of the bichloride solution. No vaginal examinations were permitted except, mark you, until after the hands had been scrubbed with soap and water with a good brush and then soaked in 1/1000 bichloride. As soon as the head appeared at the vulva a piece of gauze soaked in the bichloride solution was applied to the parts. As soon as the child was delivered the parts were covered as before. The placenta was not ruthlessly torn from its attachment but gently expressed by the Credé method. If the fingers had been introduced into the vagina or uterus then it was followed by the douche but not otherwise. Only those of us who were either in active practice or were students at that time, know of the scepticism and ridicule with which this treatment was received. We all know what its influence was; how the pestilence, together with all its dread, was driven out never to return. How, in three months after the introduction of this treatment, or rather the adoption of these preventive measures, Dr. Garrigues could write: "The effect of this treatment has been wonderful. As if by magic all trouble disappeared. Ninety-seven women have been delivered since its introduction and not only has none of them died, but there has scarcely been any disease among them—only three have had any rise of temperature. The pavillions are scarcely recognizable. Where we used to have offensive odors, feverish, prostrated or despairing patients, over-worked nurses and despondent doctors, the air is pure, the patients look well, their temperatures are normal, the nurses are cheerful and the doctors happy." Gentlemen, in the full light of these facts, and experiences, what general leading his armies over the bloody battlefield to the victorious heights beyond has contributed to the world's progress and happiness more than have those men who defied scorn and ridicule that they might bring joy, happiness and life itself to the homes of humanity. Surely, "Peace hath its victories far more than War," and while the honors and emoluments of this world come to our profession very tardily if at all, yet we know that somewhere in the great unknown future, we shall receive our reward.

"For tho' from out our bourne of Time and Place
The flood may bear us far,
We hope to see our Pilot face to face,
When we have crossed the bar."

TONSILITIS.

JOHN J. REYCRAFT, M.D.
PETOSKEY, MICH.

Someone, I believe at the last meeting, stated, after we had agreed to prepare papers, that they would rather have a paper written upon some subject in every day practice, rather than always to have to listen to some high paper on surgery beyond the reach of the average practitioner, so for that reason I have decided to forsake the erstwhile subject of surgery for a milder theme.

For that reason I have taken up the subject of tonsilitis; a subject which is so familiar to us all, yet I fear has been much neglected by the average practitioner, not wilfully, however, but simply from a lack of thought along the line I am about to disclose.

There is no excuse, however, for tonsilitis, if the public were educated as it should be to its removal; but that of course cannot be accomplished successfully, and we ever have this glandular piece of tissue subject to infection, but not to "cold-taking." I make the cold-taking in quotations, because it is a misnomer, there not being such a condition known to medical science. All is infection, and when we eliminate the staphylococci and streptococci, known, and distinguishable microbes, we do not have tonsilitis. Where do we get tonsilitis? Not from the pure cold air, but from contiguousness to one infected.

Tonsilitis is contagious, none deny, and when one in the family becomes infected, we are likely to have the family, and the visiting neighbors in a like condition.

Another thought that follows very closely is the cause of rheumatism, which but a few years since has been acknowledged to be, not a superabundance of uric acid in the system, but a blood poisoning, due to the same two germs that cause tonsilitis.

My attention was called to this fact some twenty years ago when a patient, F. V., who used to keep the old Occidental Hotel in this city, warned me that I must abort his tonsilitis, or he would come down with an attack of acute articular rheumatism. In those days I was sceptical. Knowing the theory promulgated by writers upon the subject of rheumatism, I was slow to be convinced of the truthfulness of his saying. Later, however, I thoroughly acquiesced in his statement as does everyone else who is familiar with the subject. Knowing this, it is not hard for a practitioner to leave the old theory, that peroxide of hydrogen, and listerine

are sufficient to keep out of the system this dread disease when tonsilitis becomes apparent.

Such inefficient remedies, when used together with some coal tar preparation, are not efficient enough to be used in such cases.

If we are to combat this disease, we must abort the tonsilitis and this is done in two ways: either paint the tonsil with a twelve and a half per cent. solution of silver nitrate, or do a tonsilectomy. I prefer the later, but if any of you are timid for any reason whatever, do not fail to use, what you may even whince at doing; dry your tonsil, use a small swab, and go ahead and paint. This is a twelve foot ladder, however, reaching into a twenty-four foot mow, and I am convinced beyond a doubt by having done this operation many times that we cannot afford to allow a tonsil to remain in a diseased condition.

Chloroform your patient every time; seize your infected tonsil with a four pronged mouth toothed forceps, use no tonsilotime, but a sharp pointed, curved scissors, which shoved in between the tonsil and its capsul, and spread, will loosen at least one third of the adherent tonsil. This done, three times, will permit you to pull it forward and snip it off *in toto*. Should you be afraid that you are opening avenues for infection, it is up to you to sear the scar with silver nitrate or carbolic acid.

By following this later method you are keeping out of the system a germ which often enters, causing rheumatism, endocarditis, and a multiple of other diseases, and you have not at the same time done your patient an injury. On the other hand, you have only hastened what you are about to do in a near future anyhow.

Supposing, however, you have been foolish enough to postpone the inevitable and you are confronted with a post-tonsillar abscess, ordinarily called quinsy, a direct resultant of a neglected operation on the tonsil, the thing is not to open the abscess, by some extra-tonsillar route, but go ahead and remove your tonsil *in toto*, which gives you the most desirable drainage you can have and makes it unnecessary to prolong an abscess for a whole week, as the drainage thereby received, eliminates immediately the abscess and all its attendant disadvantages.

Practitioners in medicine cannot always without doing his patient a harm, remain away from surgery, and I am so convinced by my observation and pioneer work in this line that no resulting harm comes from it that I might ery from the housetops to the timid and unsophisticated to come out in the open, like was commanded by Goliath, and "fight with this uncircumcized Philistine."

Case Reports

REPORT OF A CASE OF ELEPHANTIASIS.*

HOWARD C. ROCKWELL, M.D.
DIAMONDALE, MICH.

Mrs. C., widowed, aged 84, born in New York state and moved to Michigan in 1849. Has resided in Eaton County ever since.

Family History.—Father died aged 90—cause unknown. Mother died aged 45—tuberculosis. No history of cancer in family.

Personal Past History.—Had usual childrens' diseases. Never had scarlet fever or typhoid. Never pregnant. Climacteric at age of 50.

Present Trouble.—First noticed onset of present trouble 20 years ago. Began with slight swelling of both legs which at first extended between hips and ankles. The swelling would be intermittent accompanied with pain and slight fever. Five years it continued this way without much noticeable variation. At the end of this period the skin between knee and ankles became extremely sensitive, feverish, red, excoriated, breaking open and discharging a thin colorless fluid which afterward became milky having no odor. The skin immediately below the knees became pigmented, the same being true around the ankles and instep. In this stage it continued over a period of about ten years subsiding and break-

sharp shooting in character radiating to the hips. Shortness of breath. She had no cough and complained of no palpitation of the heart. Appetite has always been good. Has occasional attacks of vomiting.

Examination.—Shows a rather scant growth of



dark gray hair on head, no cyanosis. Has a marked kyphosis with a short frame and does not walk any. Sits up and sleeps in chair at night. On right side of face she has an epithelioma which has been present for the past five years. No pulsations present in neck. Respiration and lungs normal. Heart not enlarged, no murmur. Palpation of abdomen shows a large inguinal hernia which has been present 15 years. Has never worn truss. Her legs last June measured 25 inches in circumference at largest point, this was measurement of right limb. Left limb measured 18 inches. They were inflamed at this time and covered with a papillomatous warty growth extending over area shown in picture. The right more marked than the left. She complained of rheumatic pain about lumbar region. There was pitting only upon pronounced pressure. The skin was thickened, rough and warty.

At Present Time.—Right limb measures 18 inches in circumference. Left 15 inches. Left leg comparatively smooth. Does not complain so much of pain.

Laboratory Findings.—Blood pressure 140. Blood count did not show anything except a slight eosinophilia. I did not examine for filaria. Urine negative.

Treatment.—Has consisted of strict cleanliness. Washing and dressing with antiseptic and deodorizing solutions. Internally she has been given Tr. Fer. Chlor. m15 t. i. d. over quite a long period of time.

ing out intermittently. Two years ago her legs began to grow decidedly worse. I first saw her last June. She then complained of pain in both legs,

*Read before the Eaton County Medical Society at Charlotte, January 29, 1914.

BIBLIOGRAPHY-REFERENCES-COMMENT-DISCUSSION.

A full bibliography is given by Hyde in *Morrow's System of Dermatology* Vol. III p. 451.

McCall Anderson in the *Journal Cutaneous Medicine*, Vol. I. p. 80, records a case in which the calf circumference measured 27 inches.

Almost all of the cases reported in this country are non parasitic.

S. C. Low in the *Journal of Tropical Medicine and Hygiene*, London, March 15, 1911, gives the etiology of elephantiasis.

McCabe, in *Southern Medical Journal* of May, 1911, reports a case of elephantiasis caused by the streptococcus erysipelatos associated with bacillus prodigiosus.

Keen in his system says:

In a well advanced stage, which may not be reached until ten years have elapsed, the skin is warty, overgrown to such an extent that it is thrown into thick folds, which may overlap one another and the cuticle is piled up in horny plates, suggestive of the designation "Coats of mail." The deep creases collect and conceal the exfoliated epithelium, the secretion of the skin, and quantities of extraneous matter; and the

decomposition of these gives rise to eruption, inflammations, and ulceration, with the attendant discomforts of itching soreness and stench.

DISCUSSION-TREATMENT.

Lanz, of Leipsic, was able to obtain a complete cure in the case of a man of 49 whose right leg had been gradually enlarging in size for five years without pain; the disfigurement and discomfort resulting from the enormous size of entire limb incapacitated the patient at times. Lanz kept the man in bed ten days with limb raised and then incised thigh down to bone and bored into femur at lower middle and upper third. He then cut some narrow strips from the fascia-lata and worked them into the three holes drilled into the bone, his aim being to induce collateral circulation of lymph by opening a passage from the subcutaneous lymphatics into the intramuscular subperiosteal and marrow network of lymph vessels. Before suturing he made also a number of openings for drainage through the fascia lata.

The fascia lata is an absolute barrier for the lymph route. He was able to affect an immediate and permanent cure.

PROPAGANDA FOR REFORM.

SAL HEPATICA.—Sal Hepatica, marketed by the Bristol-Myer Co., New York, has been refused recognition by the Council on Pharmacy and Chemistry because its composition is secret, because it is advertised indirectly to the public for the treatment of diseases, because exaggerated and unwarranted claims are made for its therapeutic qualities and because its name fails to indicate its chief constituents, but does suggest its use in liver disorders. The Council authorized publication of its report because the exploitation of Sal Hepatica is an important illustration of the way in which physicians are being made parties to the introduction to the public of a patent medicine the indiscriminate use of which must often have resulted in harm, direct or indirect (*Jour. A.M.A.*, Feb. 7, 1914, p. 472).

ORRIN ROBERTSON AND HIS SEVEN SACRED OILS.—Orrison is a quack at present located at Arkansas City, Kansas, who claims to remove gall-stones by means of "Seven Sacred Oils which grow in seven different climes." For the oil he claims "One oil acts specifically upon the entire head and throat. One oil acts directly upon the esophagus. One oil acts directly upon the stomach." And so it goes, each oil acting a little lower down, until we reach the seventh oil which "acts directly" on the rectum. Robertson also exploits a cure for cancer. (*Jour. A.M.A.*, Feb. 7, 1914, p. 473).

MU-COL.—"Mu-col for Cleansing Mucous Membranes" is a nostrum put out by the Mu-col Company, (Inc.), Buffalo, N. Y. The following claims are made: "Mu-col obtains most gratifying results in catarrhal inflammations of the mucous membranes. Leucorrhea, Tonsillitis, Sore Throat, Cystitis, Internal Hemorrhoids, Nasal Catarrh and Pus Cases respond at once to irrigations with Mu-col solution. Strong solutions of Mu-col have proven of sterling

value in treating Hives, Prickly Heat, Ivy Poison, Sunburn, Eczema, Typhoid and Scarlet Fever." Examination in the A.M.A. Chemical Laboratory showed Mu-col to be a mixture of sodium chlorid and borax, equal parts, with the addition of a small amount of aromatic substances (*Jour. A.M.A.*, Feb. 7, 1914, p. 474).

PIORKOWSKI LABORATORIES NOT LICENSED.—The Public Health Service announces that statements which seem to emanate from the so-called Piorkowski Laboratories in various parts of the country to the effect that these laboratories have been licensed by the U. S. Public Health service are incorrect. Instead, after inspection, a license has been refused the Piorkowski Laboratories of Berlin, Germany (*Jour. A.M.A.*, Feb. 14, 1914, p. 553).

HEX-A-LITH.—Hex-a-lith put out by the Smith-Dorsey Co., Lincoln, Neb. is said to be a combination of hexymethylenamin and lithium citrate. As lithium citrate has a tendency to render the urine alkaline and since hexamethylenamin acts only in an acid medium, the constituents of this preparation are physiologically incompatible (*Jour. A.M.A.*, Feb. 14, 1914, p. 555).

ADMINISTRATION OF LECITHIN.—It has been shown many times that phosphorus in the form of organic compounds as it occurs in milk or in eggs probably changes in the body to phosphate and is subsequently elaborated into lecithin. In view of this there would seem to be no physiologic or biologic reason for preferring isolated lecithin as a medicament to milk or eggs. If it is believed that lecithin is indicated, the administration of one or two raw, or even cooked, yolks of eggs will supply all the lecithin that could be metabolized and presents it in a better manner than an artificial preparation (*Jour. A.M.A.*, Feb. 21, 1914, p. 615).

TRANSACTIONS

OF THE

Clinical Society of the University of Michigan

Stated Meeting, February 13, 1914

The President, R. BISHOP CANFIELD, M.D., in the Chair

Reported by REUBEN PETERSON, M.D., Secretary

HOW BACTERIA CAUSE DISEASE.*

VICTOR C. VAUGHAN, M.D.

(From the Hygienic Laboratory, University of Michigan).

For about fifteen years my students and I have directed our attention and energy largely to the study of the chemistry of bacteria. This work has been collected, systematized and published in book form.* Early in our work we realized that in order to obtain enough cell substance in a pure state to enable us to study successfully its chemistry it would be necessary to devise some method for the growth of massive cultures. After several attempts we succeeded in perfecting the large copper double tanks which have proved wholly satisfactory and have supplied abundant growths, easily obtainable and free from contamination. A copper tank ten feet long, two feet wide, and four inches deep, with a trough around the edge one inch deep, has a cover which, when lowered into place, rests in the trough. This tank is supported by an iron frame of gas piping, the legs of which rest on rollers, so that the whole may be easily moved about the room. An inner tank, two inches shorter and two inches narrower, also provided with a trough that runs around the edge, sits in the large one, and is supported two inches from the bottom of the larger one by iron cross-bars. The bottom of the outer tank and the seal trough on the edges are filled with water. The seal trough of the inner tank is filled with glycerin. Both lids are raised and lowered by wire ropes passed through pulleys fixed in the ceiling. The iron frame supporting the tanks may be of any desired height. In our incubating room we have a nest of six tanks, three of which are on frames four feet high and three on frames two feet high. This economizes space, as the lower ones

can be rolled under the higher ones. Both lids are supplied with vent tubes which are plugged with cotton in sterilization. Twenty liters of three per cent. agar is placed in the inner tank; both lids are lowered into their respective troughs, and with large gas burners at full blast underneath, the apparatus is a sterilizer. After three sterilizations on successive days the medium is inoculated by pouring a liquid culture through the vent tubes in the lid of the inner tank. Then with upper lid lowered into the water trough and gentle heat, which may be controlled by a thermoregulator, it becomes an incubator. With a number of tanks in a small room it is better to heat the room to the desired temperature, thus regulating the heat, than it is to heat each tank separately. (A photograph of this tank is shown in Figure 1).

After removal from the tanks the bacterial cellular substance may be washed with various fluids. As a rule, we have washed once or twice with sterile salt solution by decantation and then repeatedly with alcohol, beginning with 50 per cent. and increasing to 95 per cent. The substance is then placed in large soxhlets and extracted first for one or two days with absolute alcohol and then for three or four days with ether. These extractions with alcohol and ether should be thorough, in order to remove all traces of fats and waxes.

After extraction, the cellular substance is ground, first in porcelain, then in agate mortars, and passed through the finest meshed sieves. If there be bits of agar in the bacterial cellular substance, which is seldom the case, it is separated by the sieve and discarded. The one who grinds the cellular substance should wear a mask in order to protect himself; notwithstanding this precaution, several workers have been acutely poisoned, especially with the typhoid bacillus. Of course, there is no danger of infection, as the material, after the treatment already described, contains no living bacilli. The finely

*Protein Split Products in Relation to Immunity and Disease. Lea & Febiger. Philadelphia, Pa., 1913.

ground cellular substance in the form of an impalpable powder may be kept in wide-mouthed bottles in a dark place, and if so kept it retains its toxicity for years, but when long exposed to the light, even if kept perfectly dry, it becomes less poisonous.

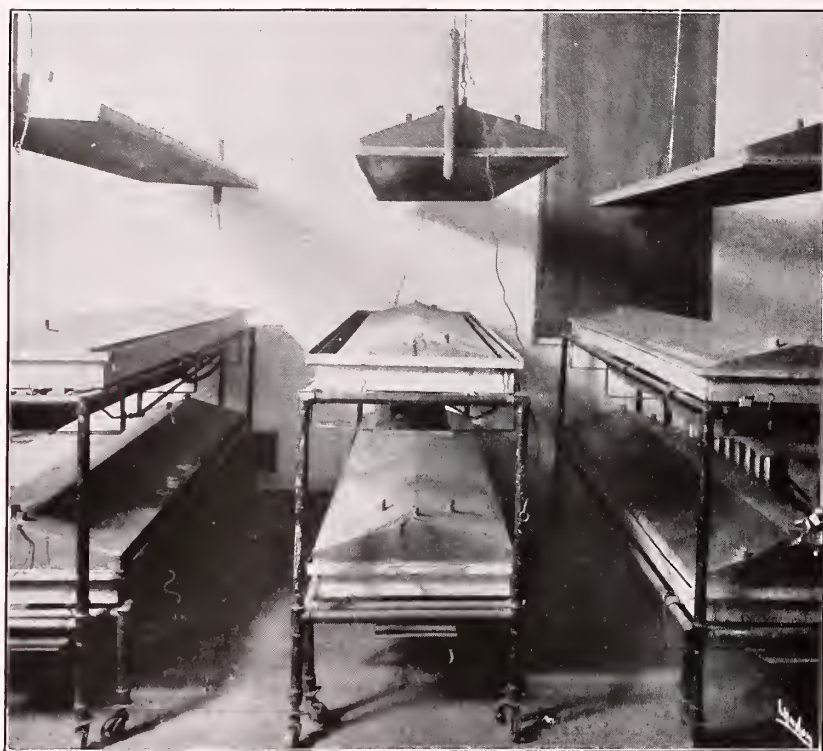
With an abundance of bacterial cellular substance obtained from the tanks the following facts were established for the colon bacillus.

1. The poison is contained within the bacterial cell from which it does not, at least under ordinary conditions, diffuse into the culture medium.

2. The poison is not extracted from the bacterial cell by dilute salt solution, alcohol, or eth-

7. The bacterial cellular proteins are, so far as their toxicity is concerned, quite resistant to the action of pepsin and trypsin.

More thorough study of the bacterial cellular substances demonstrated the fact that the bacterial cell consists largely of complex proteins. It has been assumed that bacteria are low forms of vegetable life; our work, which has been confirmed recently in Kossel's laboratory, shows that this is not true and that bacteria, although simple morphologically, are highly complex chemically, in fact, bacteria are as complex chemically as the cells of our own bodies. This is a most important fact inasmuch as it shows that the bacterial cell and the body cell are much



The incubating room, lids raised.

er, at ordinary temperature or at the boiling point of these fluids.

3. The cellular substance of the colon bacillus may be heated with water without destruction of its poisonous group.

4. 0.5 per cent. solutions of the caustic alkalies disrupt the cellular substances of the colon bacillus slowly and imperfectly.

5. Boiling with a 0.2 per cent. dilution of hydrochloric acid has but little effect upon the bacterial cell or its contained poison.

6. Heating the cellular substance for an hour in an open dish on the water-bath, with from one to five per cent. hydrochloric acid, breaks up the cells and does not wholly destroy the toxicity of the cell content; however, prolonged boiling with one per cent. or stronger dilutions of hydrochloric acid does destroy the poison.

alike in chemical composition and, as we later demonstrated, that different kinds of bacteria differ in chemical composition. Bacteria are particulate proteins containing, at least two carbohydrate groups, a nuclein group and one or more protein groups; consequently when bacteria cells are disrupted they supply carbohydrates, nuclein bodies and amino acids.

After many failures we succeeded in splitting up bacterial cellular substances into poisonous and non-poisonous portions. We were able to do this not only with pathogenic but with non-pathogenic bacteria. Having found that bacterial cellular substances contain a highly active poison the question arose as to whether or not other proteins, bacterial, vegetable, and animal contain poisonous groups; moreover, we demonstrated that the poison obtained from all

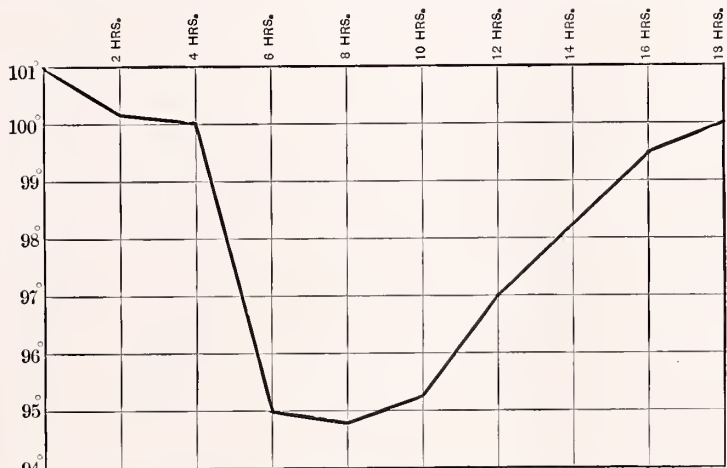
these varieties of proteins has the same, or at least similar, action. Egg-white contains just as much poison and the same poison practically as that found in the tubercle bacillus.

A comparison of the effects of the living bacillus, the dead cellular substance, and the free poison is of great interest and throws much light on the phenomena of infection.

When a guinea-pig is inoculated with a fatal dose of the living colon bacterium, practically no symptoms whatever are noticeable for a period varying from six to twelve hours, according to the size of the dose given. This may be considered as the period of incubation and is roughly proportional to the amount of living culture injected. This period of incubation represents the time taken for the bacillus to multiply and to be destroyed to such an extent that sufficient poison may be liberated through its disintegration to produce recognizable effects in the ani-

by rigidity and spasms of the abdominal muscles on pressure. At autopsy, the only gross lesion present is a marked hemorrhagic peritonitis with a large amount of bloody fluid in the cavity.

On the injection of a fatal dose of the dead cellular substance intraperitoneally, the length of the period of incubation is shortened, in fact, we have cut out one of the processes of incubation, that is, the growth of the bacillus in the body, the bacillus has been grown artificially and enough of it has been injected into the animal to cause its death. Under ordinary conditions the period of incubation is determined by the length of time necessary for the body cells to disrupt the bacterial substance sufficiently to set free enough of the poison to produce recognizable effects. In the case of the guinea-pig treated with dead substance of the colon bacillus this period is reached in about four hours; at the end of this time the temperature begins to fall and there



Temperature curve of guinea-pig after inoculation with 1 cc., sixteen-hour bouillon culture of the colon bacillus. Death occurred twenty hours after inoculation.

mal. This period of incubation is in reality the crisis of the disease and the outcome depends on whether all bacteria have been destroyed before a fatal dose of the poison is set free. It is during this period that individual resistance and acquired immunity are important factors acting by causing increased destruction of bacilli before a fatal dose is set free. During this time the temperature of the animal may rise to a greater or less extent or may remain stationary; the animal is active and is in no way distinguishable from its untreated fellows. At the end of the period of incubation the animal becomes less active, it hangs its head, and apparently enters into a state of stupor; at the same time the temperature begins to fall abruptly, as can be seen by Fig. 2. The temperature will often fall from 101° to 94° F. or even lower within from two to four hours, and this fall is progressive and continues until the animal's death, immediately preceding which a temperature as low as 85° F. is not uncommon. At the same time the animal shows signs of peritonitis, as is evidenced

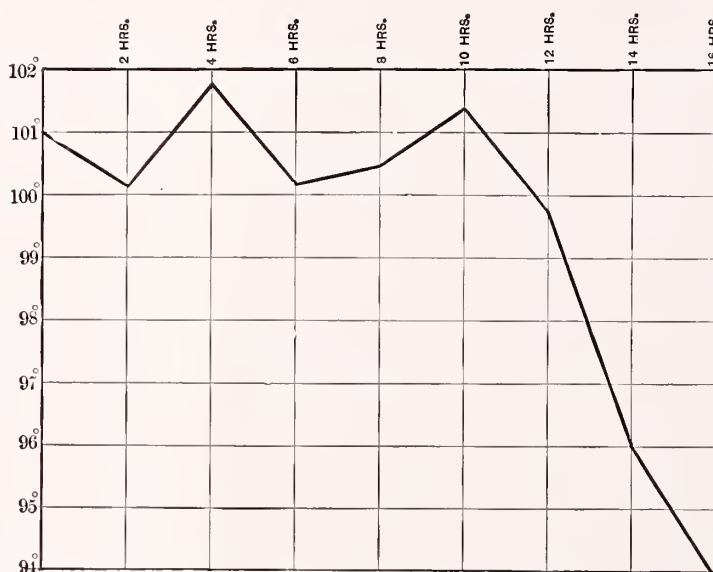
by rigidity and spasms of the abdominal muscles on pressure. At autopsy, the only gross lesion present is a marked hemorrhagic peritonitis with a large amount of bloody fluid in the cavity. On the injection of a fatal dose of the dead cellular substance intraperitoneally, the length of the period of incubation is shortened, in fact, we have cut out one of the processes of incubation, that is, the growth of the bacillus in the body, the bacillus has been grown artificially and enough of it has been injected into the animal to cause its death. Under ordinary conditions the period of incubation is determined by the length of time necessary for the body cells to disrupt the bacterial substance sufficiently to set free enough of the poison to produce recognizable effects. In the case of the guinea-pig treated with dead substance of the colon bacillus this period is reached in about four hours; at the end of this time the temperature begins to fall and there

is a decided drop until time of death, provided the dose given is a fatal one. If a non-fatal dose has been injected the temperature, as will be seen from Fig. 3, has reached the minimum at the end of from six to eight hours and has returned to normal in from twelve to twenty hours. Accompanying the fall in temperature there is apparent lassitude, stupor and roughing of the coat. In cases in which many times the fatal dose has been given, the animals occasionally die within from four to six hours with convulsions, a feature which can now and then be observed after injection of large quantities of old living cultures. At autopsy we find a picture similar in all respects to that following inoculation with living bacillus. There is a marked hemorrhagic peritonitis, the peritoneal cavity containing bloody fluid, together with unabsorbed bacterial cell substance. From this we see that practically the sole difference between the effects following inoculation with the living bacillus and the injection of the dead bacterial substance is the shortening of the period of incubation due, no

doubt, to the fact that the poison is liberated much more rapidly and in greater concentration in the second case. Since dead bacteria, both pathogenic and non-pathogenic, will kill animals when injected into the peritoneal cavity in sufficient amount it must be evident that the effects are not due directly to the growth of bacteria in the body; it must also be evident that whether a given bacillus is pathogenic or not does not depend upon its capability of forming a poison but upon its capability of growing and multiplying in the animal body.

When the free poison is given the temperature begins to fall within five to fifteen minutes and often it will be found to have reached 94° F. and even lower in many instances, (See Fig. 5). At first, after an interval of from five to ten minutes immediately following the injection, the animal appears restless, runs about the cage,

until all the muscles of the body become involved in violent clonic convulsions. This stage, when present, presages a fatal outcome; rarely an animal recovers after reaching the convulsive stage. During a convulsion, or occasionally in the interval of calm, respiration ceases. The heart, however, continues to beat, at first with perfect regularity and no acceleration; indeed, the rate seems to be somewhat slower than normal. Gradually the beat becomes more and more feeble, the rate and regularity being preserved to the end. It is usually only after an interval of from three to four minutes after the cessation of respiration that the heart ceases to beat. As has been previously stated, a fatal issue, if it occurs at all, always results within one hour after injection and usually within from thirty to forty minutes. This is to a large extent independent of whether the dose is the



Temperature curve of guinea-pig after intraperitoneal injection of non-fatal dose of crude bacterial cell substance.

and shows a great tendency to scratch itself, this undoubtedly being due to itching sensations in the skin caused by irritation of peripheral nerves. The animal then begins to show evidence of lack of co-ordination, which is rapidly followed by partial paralysis, which is especially marked in the hind extremities. This stage lasts for from five to ten minutes, during the latter part of which the animal usually lies quietly on one side. From this state the animal passes into what one might term the convulsive stage. These convulsions are usually clonic in nature and, as a rule, at first involve only the neck muscles, the head being momentarily drawn backward on the back. At first these convulsions are but slight in degree and are separated by considerable intervals of time. Soon, however, they become much more frequent and of much greater severity. Gradually they become more and more general in their extent.

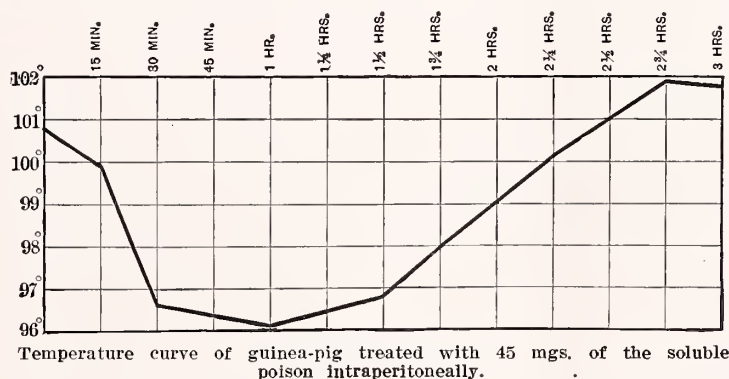
minimum lethal one or two or three times that amount. It is certainly entirely independent of the size of the pig. Death, of course, results at slightly different times with different batches of the poison, but even in this case the interval of time between injection and a fatal issue does not vary to any great extent. A dose which has proved to be the minimum fatal dose for one pig will almost surely prove to be the same for another. In other words, we have done away entirely with the period of incubation, and the poison acts so rapidly that individual resistance plays no part; hence, the animal acts almost with the exactitude of a chemical compound into which for all practical purposes it has been converted. The period of incubation has ceased to exist since the poison is no longer contained within either the dead or the living bacillus, but is present in a free and uncombined form, capable of uniting immediately with those body

cells for which it may possess a special affinity.

After the above described work had been done, the phenomena of protein sensitization or so-called anaphylaxis became prominent and it will be necessary to discuss the elements of this discovery.

The older medical literature occasionally records facts which in the light of more recent and extended knowledge are known as the phenomena of protein sensitization. Such were some of the experiences recorded in the early attempts at the transfusion of blood. Many of the untoward results reached in the procedure and beyond the ken of that time are now fully explained. Behring and Kitashima¹ found on immunizing an animal to tetanus toxin that it died in convulsions notwithstanding the fact that the blood serum was richly charged with antitoxin. They explained this by assuming the existence of a condition of "hypersensitiveness" to the toxin. With our present knowledge we see no reason for ascribing this to the toxin. There is, so far as we know, no evidence that

tained a soluble poison which he named synzytiotoxin. Later, he showed that hay fever results from the parenteral digestion of the proteins of pollen. Both of these points will be discussed in more detail later. Wolff-Eisner⁵ discussed the theory of endotoxins and their application to various diseased conditions, in a very suggestive manner, but added little to our exact knowledge. Richet⁶ has made many valuable contributions to this subject. In his first report made with Portier in 1902, he worked with an extract from the tentacles of a muscle and showed that an injection of this made the animal much more susceptible to a second one. Unfortunately, he coined the word anaphylaxis as most suitable to cover this condition of increased susceptibility. He used this word understanding it to mean "without protection," indicating that the first injection destroyed any natural resistance that the animal might possess against the poison. Now, we know that the condition of sensitization is essential to certain forms of immunity, as was first indicated by



animals can be rendered hypersensitive to either toxin or antitoxin. Neither has ever been obtained free from proteins, and since all true proteins, so far as we know, sensitize, there seems no sufficient justification in ascribing a sensitization induced by a protein solution containing a toxin to a latter. Buchner² repeatedly injected bacterial proteins into men and noticed that the cardinal indications of local inflammation, tumor, rubor, dolor, and calor resulted. Furthermore, he noted that fever increased with repeated injections, Krehl and Matthes³ induced fever in animals by repeated injections of albumose and peptone.

Weichardt⁴ made an advanced study in the domain which we now designate as anaphylaxis. He repeatedly treated rabbits with protein expressed from placental cells, and found that some of these died promptly on subsequent injections. Furthermore, he mixed the serum of animals thus treated with placental cells and ob-

Vaughan and Wheeler,⁷ and the inappropriateness of the term anaphylaxis is self-evident. However, the word has come into general use, and with this explanation we will continue it. V. Pirquet⁸ proposed and has continued the use of the word "allergie," meaning altered energy. This is much more suitable, inasmuch as it simply expresses a fact and binds no one to any theory. However, "allergie" has not been usually employed, and we will use "protein sensitization," "hypersensitiveness," "anaphylaxis," and "allergie" as synonyms.

The fact that animals which have once received an injection of protein are liable to sudden death after a second injection of the same kind has been known for many years. Ever since the opening of the Hygienic Laboratory of the University of Michigan (1888), animals once used have been segregated and kept in cages marked "used animals," which indicated that conclusions could not be safely drawn from re-

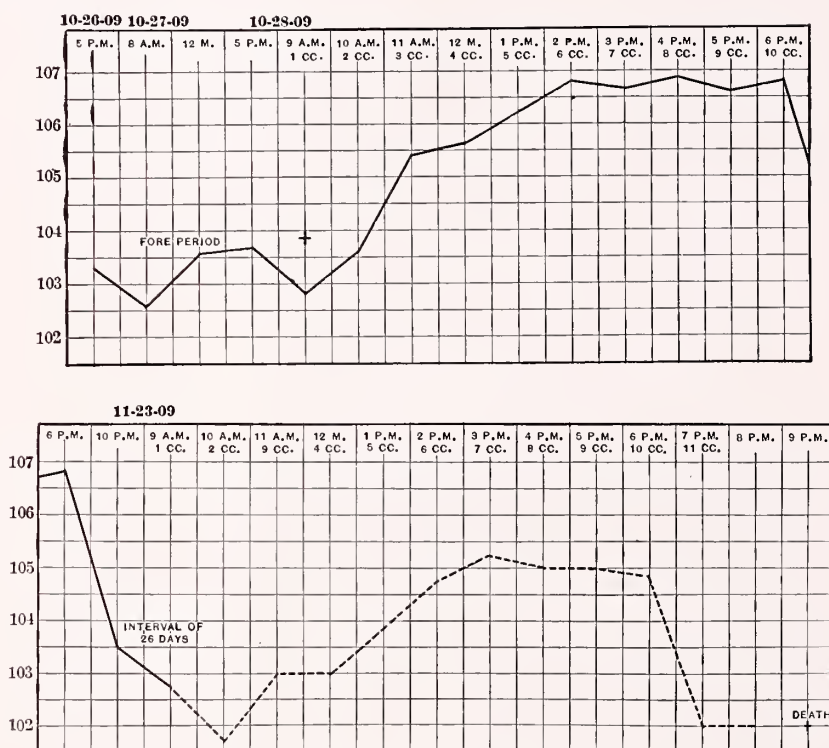
1. Berl. Klin. Woch., 1901, No. 6.
 2. Berl. klin. Woch., 1890, 216; Münch. med. Woch., 1891, No. 3.
 3. Arch. f. exper. Path. u. Pharm., 1895, 232; *ibid.*, 1896, XXXVI, 437.
 4. Berl. klin. Woch., 1903, No. 1.

5. Zentralbl. f. Bakt., 1904, XXXVII; Münch. med. Woch., 1906; Derm. Zentralbl., 1906; Berl. klin. Woch., 1907.
 6. Compt. rend. de la Soc. biol., 1902; Ann. de l'Institut Pasteur, 1907, XXI, 497; *ibid.*, 1908, XXIII; *ibid.*, 1909, 7. Jour. Infect. Dis., 1907.
 8. Münch. med. Woch., 1906.

sults obtained when these animals were employed a second time. In the standardization of diphtheria antitoxin it soon became evident that the guinea-pig that survives one test could not be relied upon in a second one. In the late nineties, Parke, Davis & Co., large manufacturers of antitoxins, ascertained this fact and offered to supply the Hygienic Laboratory of the University of Michigan with "used" guinea-pigs at a small price. The offer was accepted, but the animals were found dear at any price, as they suddenly and unexplainably died when treated with horse serum.

This condition evidently was observed by others, and Theobald Smith mentioned it to Ehrlich, who set Otto to work to find the ex-

antigen, after a period of incubation becomes hypersensitive to the same or to a closely related substance, and when this condition can be passively transferred to fresh animals by the serum or organ extracts of the sensitized animal." Biedl and Kraus,¹² omitting passive anaphylaxis, give the following: "By anaphylaxis we mean *that* state of specific hypersensitiveness induced in animals by protein injections, and in which symptoms of poisoning follow subsequent injections of the same protein in doses which would have no effect upon untreated animals." With some explanation to be given later we accept these definitions as quite satisfactory. In the meantime it is desirable to have a clear understanding of the meaning of the terms em-



The production of continued fever in a rabbit by repeated subcutaneous injections of egg-white.

planation. Otto⁹ published his results under the title "Das Theobald Smithsche Phänomen der Serumüberempfindlichkeit." However, simultaneously with these observations on animals used in the standardization of antitoxin, the profession had occasion to observe the effects of injections of antitoxin in human beings. As early as 1903, v. Pirquet¹⁰ wrote concerning certain clinical effects following antitoxin treatment, and in 1905 he and Schick published a monograph "the serum disease," "Die Serumkrankheit."

Friedemann¹¹ offers the following definition: "We speak of anaphylaxis when the organism, in consequence of a previous treatment with an

employed in discussing this subject. The substance which induces the anaphylactic state is generally known as the "antigen." This implies that it gives rise to the production of an antibody, and the selection of this word has been determined by an attempt to correlate the phenomena of anaphylaxis with the theory evolved by Ehrlich in explanation of the production of antitoxins by treatment with toxins. In truth the "antigen" of anaphylaxis is not a toxin, nor is the new substance generated in the body of the treated animal an antitoxin. The term "anaphylactogen" is unobjectionable, since it is applicable to any substance which induces the anaphylactic state. Sensitizer is a good word, and commits one to no theory. The same is

9. V. Leuthold Gedenkschrift, 1906.

10. Wien. klin. Woch.

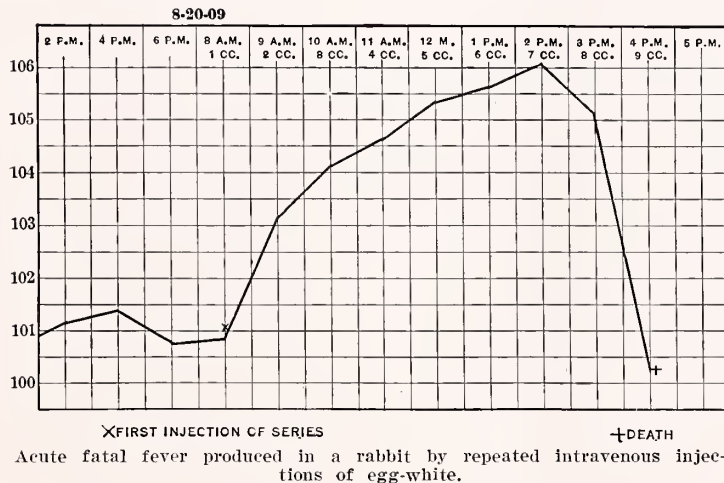
11. Jahresb. u. d. Ergeb. d. Immunitätsforschung, 1910, VI.

12. Kraus and Levaditi's Handbuch d. Technik u. Methodik d. Immunitätsforschung Ergänzungshand.

true of the term "sensibilisinogen" used by our French Confreres. The sensitizer causes the body cells of the treated animal to elaborate a specific proteolytic ferment which digests or splits up the sensitizer. Again, following the nomenclature of Ehrlich, this ferment elaborated as a consequence of the introduction of the sensitizer is generally designated as the "antibody." It would be equally rational to speak of pepsin as an antibody of beefsteak, because the former digests the latter. The theory evolved by Ehrlich in his studies on toxin immunity is the product of a genius of the highest order. It has stimulated research, which has resulted in discoveries of the greatest importance, but the attempt to explain all physiologic and pathologic processes by this theory, and to describe them in the nomenclature of this theory is unscientific. To say that anaphylaxis is the result of protein-antiprotein reaction is to talk jargon. When foreign proteins are taken into the alimentary canal they must be digested before they

foreign protein is introduced into the blood or tissue it stimulates certain body cells to elaborate that specific ferment which will digest that specific protein. When such a protein first comes in contact with the body cells the latter are unprepared to digest the former, but this function is gradually acquired. The protein contained in the first injection is slowly digested, and no ill effects are observable. When subsequent injections of the same protein are made, the cells, prepared by the first injection, pour out the specific ferment more promptly and the effects are determined by the rapidity with which the digestion takes place. The poisonous group in the protein molecule may be set free so rapidly and in amount sufficient to kill the animal. This in brief is an explanation of the phenomena of anaphylaxis.

In 1907 Wheeler and I proposed a theory of sensitization, the principles of which may be stated as follows:



are absorbed. This means that their large molecules must be split into smaller ones, and this must be continued until there are no more protein molecules left. Every protein molecule contains a poisonous group, and in normal, alimentary digestion this group is rendered non-poisonous by further cleavage before absorption takes place. When foreign proteins find their way into the blood and tissues they must be digested. This is accomplished, as it is in the alimentary canal, by proteolytic ferments but the danger from the poisonous group in the protein molecule is evidently greater in parenteral than in enteral digestion. Both enteral and parenteral digestion are physiologic processes. Every living cell has its own proteolytic ferments, otherwise it could not live. When stimulated it pours out this ferment, and it does so only when stimulated. The function of a cell ferment depends upon the kind of cell elaborating it, and to a certain extent upon the stimulating substance. The proteins are the normal stimulants to cell secretion. When a

1. Sensitization consists in developing in the animal a specific proteolytic ferment which acts upon the protein that brings it into existence, and no other.

2. This specific proteolytic ferment stored up in the cells of the animal as a result of the first treatment with the protein remains as a zymogen until activated by the reinjection of the same protein.

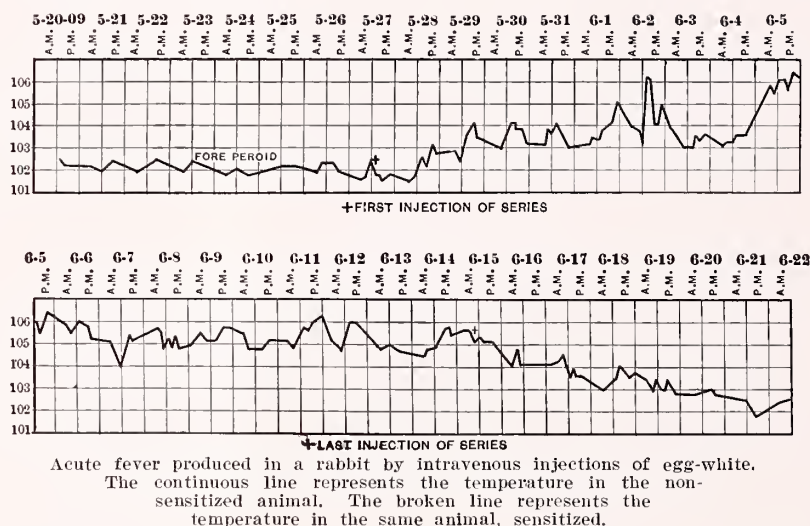
3. Our conception of the development of a specific zymogen supposes a rearrangement of the atomic groups of the protein molecules of certain cells, or an alteration of their molecular structure. In other words, we regard the production of the specific zymogen not as the formation of a new body, but as resulting from an alteration in the atomic arrangement within the protein molecule, and a consequent change in its chemism.

4. Some proteins in developing the specific zymogen produce profound and lasting changes in molecular structure, while the alterations induced by others are slighter and of temporary

duration, the molecular structure soon returning to its original condition.

5. Bacteria and protozoa are living, labile proteins, while egg-white, casein, serum albumin, etc., are stable proteins. The proteins of one group are in an active, while those of the other are in a resting state, but both are essentially proteins made up of an acid or poisonous chemical nucleus, and basic, non-poisonous groups. Bacterial immunity and protein sensitization, apparently antipodal, are in reality the same, and each consists in developing in the animal body the capability of splitting up specific proteins. If the living protein be split up before it has time to multiply sufficiently to furnish a fatal quantity of the poison, the animal lives and we say it has been immunized. If the stable protein be introduced into the animal body it leads to the development of a specific proteolytic ferment, and if enough of it to supply a fatal dose be reinjected after this function has been developed, the animal dies.

gether tends to resist this process of disintegration. The pathogenic bacterium assimilates the nutritious constituents of the fluids of the animal body, builds them into its own tissue, converts them into substances foreign to the host, and finally, when the bacterial cell goes to pieces either from spontaneous dissolution, or through the aggressive action of some animal cell, these reconstructed chemical groups are set free and poison the animal, inducing lesions in various tissues, and, in many instances, so interrupting the vital functions as to cause death. It is in harmony with these statements that Friedberger has been able to induce aseptic pneumonia by spraying horse serum into the lungs of guinea-pigs sensitized with the same, and Schittenhelm and Weichard have established "enteritis anaphylactica" by the reinjection of egg-white into sensitized dogs. It is more than probable that cholera infantum and the kindred summer diarrheas result from the absorption of undigested milk and consequent sensitization. The design-



6. We are compelled to change our ideas concerning the causation of the lesions of the infectious diseases. Formerly, we believed the structural changes to be due wholly to the living, growing, feeding microorganisms. For instance, we were sure that the intestinal ulcerations of typhoid fever are caused by the living bacilli. Now we know that these lesions follow the intravenous injection of dead proteins. As has been stated, each foreign protein has its predilection tissue in which it is largely deposited, whose cells it especially sensitizes, and where it is disrupted. This explains the characteristic lesions and symptoms of the different infectious diseases. Bacterial inflammation is essentially a chemical process, or is due to the disruption of cell molecules through the chemical affinity between certain groups in the bacterial cell and certain groups in the cell of the animal. So long as the bacterial cells are alive the chemism that holds the living molecule to-

nation "protein disease" might be used to cover the majority of bacterial and protozoal disease, and many of these hitherto regarded as auto-genous.

7. It seems to be a physiologic law that the specific ferments elaborated by living cells are determined by the proteins brought into contact with them, but as yet we know but little concerning these bodies which we call ferments. That they are labile chemical bodies resulting from intramolecular rearrangement in the protein molecules of the cell seems a plausible theory, but at present it is only a theory. We know but little of the action of these so-called ferments upon their homologous proteins. Our knowledge of the chemistry of protein sensitizers is exceedingly limited, and, as we have pointed out, it is highly desirable that work in this direction should be prosecuted with vigor, because we need sensitizers free from the poisonous group. Furthermore, there is the question

why small doses of protein induce fever while large doses have no such effect. At present we have no satisfactory answer to this question. If it could be conclusively demonstrated that the toxins are ferments, the subject of the etiology of disease would be greatly simplified. We have elsewhere, given our reasons for holding that the toxins are ferments, and at this point we wish to formulate what we believe to be two biologic laws:

(a) When the body cells find themselves in contact with, or permeated by, foreign proteins they tend to elaborate specific ferments which digest and destroy the foreign proteins.

(b) When body cells are attacked by destructive ferments they tend to elaborate anti-ferments, the function of which is to neutralize the ferments and thus protect the cells.

In 1909, Wheeler, Gidley and I demonstrated that any desired form of fever, acute, fatal, continued, intermittent, or remittent can be induced in animals by regulating the size and frequency of the doses of foreign protein administered parenterally, and in 1911 Cumming, Wright and I extended the details of this work. As a result of these studies we reached the following conclusions:

1. Large doses of unbroken protein administered intra-abdominally, subcutaneously, or intravenously have no effect upon the temperature; at least do not cause fever.

2. Small doses, especially when repeated, cause fever, the forms of which may be varied at will by changing the size and the interval of dosage (for fever charts see Figs. 6, 7, and 8).

3. The effect of protein injections on the temperature is more prompt and marked in sensitized than in fresh animals.

4. The intravenous injection of laked blood corpuscles from either man or the rabbit causes in the latter even in very small quantity, either in single or repeated doses, prompt and marked elevation of temperature.

5. Laked corpuscles after removal of the stroma by filtration have a like effect.

6. Protein fever can be continued for weeks by repeated injections, giving a curve which cannot be distinguished from that of typhoid fever.

7. Protein fever is accompanied by increased nitrogen elimination and gradual wasting.

8. Protein fever covers practically all cases of clinical fever.

9. Animals killed by experimentally induced fever may die at the height of the fever, but, as a rule, the temperature rapidly falls before death.

10. Fever induced by repeated injections of bacterial proteins and ending in recovery is followed by immunity.

11. The serum of animals in which pro-

tein fever has been induced digests the homologous protein in vitro.

12. Fever results from the parenteral digestion of proteins.

13. There are two kinds of parenteral proteolytic enzymes, one specific and the other non-specific.

14. The production of the non-specific ferment is easily and quickly stimulated.

15. The development of the specific ferment requires a longer time.

16. Sensitization and lytic immunity are different manifestations of the same process.

17. Foreign proteins, living or dead, formed or in solution, when introduced into the blood soon diffuse through the tissues and sensitize the cells. Different proteins have predilection places in which they are deposited and where they are, in large part at least digested, thus giving rise to the characteristic symptoms and lesions of the different diseases.

18. The subnormal temperature which may occur in the course of a fever or at its termination is due to the rapid liberation of the protein poison, which in small doses causes an elevation, and in larger doses a depression of temperature.

19. Fever *per se* must be regarded as a beneficent phenomenon, inasmuch as it results from a process inaugurated by the body cells for the purpose of ridding the body of foreign substances.

20. The evident sources of excessive heat production in fever are the following: (a) That arising from the unusual activity of the cells supplying the enzyme; (b) That arising from the cleavage of the foreign protein; (c) That arising from the destructive reaction between the split products, from the foreign and the proteins of the body.

From the work already detailed I have formulated statements concerning the phenomena of infection. These may be briefly stated as follows:

In all infections there are two principal factors—one the infecting virus and the other the body cell. In addition to these there is the environment in which the struggle for supremacy between the virus and the body cell takes place. This consists of the unorganized fluids of the body, and is of great weight in determining the result of the contest. In the first place, what do we know of the infecting virus? As we have seen, bacteria are particulate, specific proteins. Since they are particulate, we speak of them as bacterial cells. It is not, however, essential that an infecting virus be participate in the sense that it be possessed of substance and form recognizable to our limited sense of sight even when aided by the most perfect microscope. There are many filterable viruses. Some pass through our finest porcelain filters

and cannot be deposited from the fluids in which they exist even when kept for hours in the most efficient centrifuge manufactured. Theoretically, there is no reason why a virus may not exist in any degree of lability of structure. The bacteria are particulate and solid, which means that their structure is so radically different physically from the medium in which they exist that they can be recognized by sight, aided by proper magnifying lenses, but viruses may be semi or wholly fluid. In such instances their structure is not sufficiently differentiated from the medium that we can recognize them. According to our conception, a living protein does not necessarily possess a form recognizable to our limited sense even when aided by the most perfect lenses.

One of the most important results of our work, in our opinion, is the demonstration that bacteria are chemically not simple, but quite complicated in structure. Morphologically, they show but little or no differentiation in structure, but chemically they are quite as complicated and complex as many of the cells of higher animals. They contain carbohydrates, nuclein bodies, and polymers of the mono- and diamono-acids. They are glyconucleo-proteins. We interpret this as signifying that functionally they are highly developed.

While an infecting virus may be solid, semi-solid, gelatinous, or liquid, we will, in the further consideration of the phenomena of infection, take the particulate type, the bacterium, as an example of an infecting agent.

What are some of the capabilities of a bacterial cell? In the first place it possesses that attribute which distinguishes and characterizes all living matter—the capability of growth and reproduction. In order to grow and multiply its molecular structure must be labile— in a state of constant change. Some bacteria under certain conditions may pass into a resting state characterized by the formation of spores, but these are awakened into life when the environment becomes fit, and the spore develops into the active form when it infects. In all instances the active, infecting agent is a living protein, capable of growth and multiplication. In order to do this it must carry on a constant exchange in matter with the medium in which it exists. It must assimilate and eliminate. It must absorb groups from the molecules about it, and cast out those which it has already used. Stop this process and the continuation of life is impossible. Every living cell, be it bacterial, vegetable, or animal, must feed or cease to exist. Besides, a cell is limited in its food supply by that which lies within its reach. There must, therefore, be a certain supporting relation between the bacterial cell and the medium. The groups derived from the medium must fit into the molecular structure of the cell, otherwise

they would be of no service to it. This necessitates the cleavage of the molecules of the medium along definite lines. Many kinds of cells may live in the same or like media, but for each kind of cell the cleavage of the medium must be specific. From this it follows that the agent by which the cleavage products are secured must be supplied by the cell itself, and must be peculiar to that kind of cell. These cleavage agents which prepare foods for the cell from the medium are known as ferments, and each kind of cell has its own characteristic and specific ferments. As to the real nature of ferments, we know little or nothing, but that every kind of cell has its specific ferment or ferments, we do know. The same ferment may not be able to break up all proteins. In this respect there are great variations in the proteolytic ferments. Some digest a wide variety of proteins while others are capable of acting only on one specific protein. There must be a relation between the ferment and its substrate. As Fisher once said, the former must fit the latter as a key fits into the lock, and as there are master keys that open many doors, so there are general proteolytic ferments, and as there are special keys that fit only one lock, so there are specific proteolytic ferments. It will be observed that we have used the word “specific” in two senses in speaking of proteolytic ferments. Each kind of cell has its specific ferment, and each protein may have its specific ferment. This double use of the term “specific” should be borne in mind, since there seems to be no way to avoid it.

It follows from what has been said that a bacterium placed in a medium in which its ferment is ineffective cannot grow and multiply. A bacterium which cannot grow and multiply in the animal body cannot cause an infection. Its inability to grow and multiply in the animal body may be due to the fact that its ferment or ferments cannot digest or properly break up the proteins of the animal body. This is one of the reasons why the great majority of bacteria are non-pathogenic or are harmless. These organisms when grown on suitable media produce as much poison as the pathogenic bacteria, but not being able to feed upon the proteins of the body they die. This, however, is not the sole, and probably not the most important, cause of the failure of so many varieties of bacteria to do harm to the higher animals. What has been said about the production of ferments by the bacterial cell is equally true of the body cell. In fact, it is true of every living cell. The body cell has its specific ferments, and the bacterial cell being protein substance is liable to be digested by the ferments elaborated by the body cells.

In the inability of the bacterial cell to grow in the animal body either because it cannot feed upon the proteins of the body, or because it is

itself destroyed by the ferments elaborated by the body cells lies the fundamental explanation of all forms of bacterial immunity either natural or acquired. Toxin immunity needs further explanation. Certain bacteria, of which the diphtheria bacillus may be taken as a type, elaborate soluble, extracellular substances known as toxins. These are probably ferments or closely allied bodies. They resemble ferments in the following particulars: (1) They are destroyed by heat. (2) They act in very dilute solution. (3) When repeatedly injected into animals in non-fatal doses they cause the body cells to elaborate antibodies which neutralize the toxin both in vivo and in vitro. (4) In the development of their effects a period of incubation is required. (5) It has been shown by Abderhalden, by optical methods, that they have a cleavage effect upon proteins. They split complex proteins into simpler bodies. In other words they have a proteolytic action. (6) They are specific in two senses. (a) They are specific according to the cell which produces them. Diphtheria toxin is elaborated by the diphtheria bacillus and by no other organism. The toxin of snake venom is a specific product of the poisonous gland of the snake, and this is further specific inasmuch as that produced by the glands of one species is different from that elaborated in another species. (b) They are specific in the antibody elaborated in the animal body after repeated injections of non-fatal doses. Diphtheria antitoxin protects only against diphtheria toxin, and not against that of the tetanus or dysentery bacillus, or that of snake venom.

The side-chain theory evolved by the genius of Ehrlich best explains the action of toxins and the production of antitoxins. Without subscribing to all the details of this theory, we believe that it is a biological law that when a living cell is attacked by a destructive ferment or toxin it tends to elaborate an antiferment or antibody. This is one of the ways in which the living cell may protect itself. The formation of such antibodies in multicellular animals is one of the factors in the fine adjustment essential to harmony of action between different tissues and organs. It best explains the fact that the digestive organs do not harm themselves, and the antitryptic action of blood-serum is one of the most interesting and important phases of par-enteral digestion.

The number of pathogenic bacteria which produce toxins, at least in appreciable quantity, is small, and the action of toxins and antitoxins in infections due to those organisms which do not produce such bodies is of minor importance. Since all bacteria, and in fact all living cells produce ferments, and since every ferment, so far as we know, may lead cells acted upon by them to produce antiferments, there

may be some toxin and antitoxin action in all infections, but in most bacterial infections such action is overshadowed by processes much more powerful in their effects.

In our opinion the action of the diphtheria bacillus may be stated as follows: The organism finds lodgement and the conditions for growth favorable in the upper air passages. Here it grows in mass and may kill by mechanical obstruction. It produces its soluble, diffusible toxin, which has the properties of a ferment and splits up the proteins of the body, setting free the protein poison. In case of recovery or in the production of antitoxin in animals, the body cells elaborate an antiferment or antitoxin which neutralizes the toxin and prevents its cleavage action. The bacilli in the throat are not destroyed by natural recovery or by cure with antitoxin, but the action of the toxin is prevented by the antibody. It is not, in our opinion, the toxin itself which kills, but a cleavage product which results from the action of the toxin on the proteins of the body.

All ferments are of cellular origin. This does not mean that ultramicroscopic forms of life or non-participate living organisms, if there be such, do not produce ferments. It would probably be better to say that all ferments are the products of living organisms and that there can be no living organism which does not produce its specific ferment. We cannot conceive of life without ferment action, because all living things must feed and food assimilation without ferment action is inconceivable. Food must be fitted for assimilation, and this is dependent upon ferment action.

Ferments are intra- and extracellular. All are formed within the cell, but some diffuse into the medium while others do not. In some instances at least cell permeation by the pabulum is essential to the feeding of the cell. In other instances it is highly probable that the ferment is accumulated on the cell surface and there acts upon the pabulum. In still other instances the ferment diffuses into the medium more or less widely from the cell which elaborates it. Many cells produce both intra- and extracellular ferments, and these are not necessarily the same. In some instances, probably in most cells, the intracellular ferment cannot be extracted from the cell or obtained in soluble form without destruction of the cell. This does not mean that it must exist in the soluble form before it can manifest its cleavage action. The pabulum may permeate the cell and in this location be split up by the intracellular ferment. We have insisted upon this as an explanation of the well-established fact that soluble proteins sensitize much more readily and completely than insoluble ones.

Before proceeding further it may be well to call special attention to some of the properties

of these ferments. The extracellular ferments are diffusible. They not only pass out of the cells in which they are prepared, but they diffuse more or less widely through the medium which surrounds the cell. This suggests that in molecular structure they are relatively simple. At least some of them may pass through membranes and collodion sacs, as is shown by the fact that bacteria and other proteins enclosed in such receptacles and left in a body cavity are destroyed. The extracellular ferments are, in part at least, filterable, passing with more or less readiness through porcelain. In their activities they are easily affected by modification in the medium through which they diffuse. The alexin of the blood serum is highly sensitive to the salt content of the serum, and by variations in this the activity of the ferment may be hastened, lowered, or wholly arrested. The same is true of bacterial ferments. In one species of animal a given bacterium multiplies with great rapidity; in another it grows slowly, while in a third it cannot grow at all. There are like variations in individuals of the same species. The extracellular ferments, at least some of them, are susceptible to slight changes in temperature. It is believed that every ferment has its optimum temperature, but the range in which continued activity is possible is narrow with some and relatively wide with others.

The intracellular ferments are non-diffusible, or at least less diffusible than the extracellular. They remain in the cells in which they are elaborated. They cannot be extracted from the cell by indifferent solvent. As a rule, they can be obtained from the cell only after partial or complete destruction of the cell. Some, probably most, are best extracted from the cell with dilute alkali, while others are best obtained by dilute acid. In either case the reagent must not be strong enough to destroy the ferment itself. They are non-filterable, or pass through filters slowly and imperfectly. We suspect that their molecular structure is relatively complex, or that they are more colloidal than the extracellular ferments. Under natural conditions the intracellular ferments act only on those bodies which are taken into the cell. The inclusion of bacteria by phagocytes is essential to the digestion of the former by the intracellular ferment of the latter. This is a phenomenon which may be seen, but cell permeation by foreign bodies is certainly necessary before such bodies can be acted upon by the intracellular ferments, and occurs with soluble proteins as well as with particulate ones. The intracellular ferment bears a wider variation in temperature, and is not so easily and delicately influenced by variations in the composition of the medium in which the cell exists. So far as we know the intracellular ferments do not

diffuse from living cells. They are, however, recognizable in the fluids of abscess cavities as the leukocytes disintegrate. We are of the opinion that they are essential constituents of the chemical structure of cells. The reason for this belief will be developed later. The extracellular ferments may be regarded as secretions of cells. Much has been written about cellular and humoral theories. In our opinion every living thing has a chemical structure, which we may designate as a cell if we wish, understanding that a cell is not necessarily something that can be seen, and that it may possess widely different degrees of liability, but we are quite certain that there is no ferment which is not the product of life processes. We have been somewhat surprised to find it stated that our own theory of protein sensitization or anaphylaxis is a humoralistie doctrine.

All ferments are products of life processes, and all life processes are more or less responsive to outside influences, to change in environment. In our opinion the most valuable fact that we have learned in the study of protein sensitization is that life processes manifested through ferment action are modified and may be modified at will by changes in environment. The blood-serum and organ extracts of normal guinea-pigs do not digest egg-white, but these fluids from an animal sensitized to this protein do have this action. The virus of smallpox is pathogenic to the man who has never had smallpox, and has not been vaccinated, but to the man who has had the disease or been properly vaccinated the virus of smallpox is non-pathogenic. We explain this, and in our opinion, the experiments of v. Pirquet have so demonstrated, that this is due to the fact that the ferments of the man's body cells have been so influenced by the disease or by vaccination that they have acquired a new function—that of digesting and thus destroying the virus of the disease. If this explanation be true, it opens up a wide field for the possible extension of the beneficial effects of preventive treatment.

There is another point of difference between intracellular and extracellular ferments, which is of the greatest importance in a study of the phenomena of infection. The extracellular ferments are comparable to those of the digestive juices of the alimentary tract in the higher animals. They roughly prepare foods for the cells. Their function is solely a lytic one. They break up complex proteins into simpler bodies, but the products thus formed are not, without further treatment, ready to be built into the structure of the cell. Proteins in the medium are rendered soluble by the extracellular ferments. They are so altered that they may be taken into the cell, but they are not so patterned that they are ready to be built into the struc-

ture. They are fitted for absorption, but are not ready for assimilation. The extracellular ferments are in a sense destructive agents. They break down complex molecules into simpler structures. The intracellular ferments are constructive. They are cell builders. They shape the material brought them and fit it into place. They build up specific proteins. They convert the raw material brought them into specific proteins, bacterial, vegetable, or animal. This does not mean that the intracellular ferments have no cleavage action. They chip the rough stone so that it fits in at the right place. It is by virtue of their activity or through their agency that cells grow and multiply. In case of an infectious disease the intracellular ferment of the infecting organism during the period of incubation converts man's proteins into bacterial proteins, and continues to do this with more or less success during the course of the disease. This seems to be accomplished in some diseases, at least, like typhoid fever, without any marked disruption of the cells of the man's body. The bacteria multiply rapidly during the period of incubation, and at this time the man is unconscious of the fact that his body is serving as a culture flask. We must conclude from this that the conversion of human proteins into typhoid proteins in the growth of the infecting agent is not accompanied by the liberation of the poisonous group in the protein molecule. This group, probably attached to other groups, or as a constituent of a more complex group, is used in the construction process. The poisonous group is common to all proteins. The synthesis of specific proteins from other specific proteins is accomplished without the liberation of the poisonous portion. It is one of the building stones, and changes in specificity do not occur in this, but in the secondary or characteristic group. This is, in our opinion, the explanation of the fact why incubation—a period of rapid reproduction in the infecting agent—proceeds without any recognizable disturbance in the health of the host. The typhoid bacillus, therefore, does not feed upon the cells of the man's body, but upon the formless, soluble proteins. Cell building is accompanied by the absorption of the poisonous group in the proteins serving as food. However, when the body cells become sensitized and elaborate a ferment which breaks down the bacterial cells, the poisonous group in the proteins of the latter is set free, and it is the effect of this poison that develops the symptom complex of the disease. The symptoms of one infectious disease differ from those of another largely according to the organ or tissues in which the infecting agent is located. In acute miliary tuberculosis and in typhoid fever, both conditions arising from a bacteremia caused by different organisms, the symptoms are only too frequently identical,

and it is only by bacteriologic methods, a suggestive history, or the findings of a pre-existing tuberculous focus in some part of the body that a differential diagnosis may be reached. A cholecystitis is the same, not only in symptomatology, but frequently in gross pathology as well, whether the infecting organism be the pneumococcus, the streptococcus, the colon, or the typhoid bacillus. The most skillful diagnostician cannot tell from the symptoms alone the specific bacterial cause of a meningitis.

During the period of incubation of an infectious disease, the infecting organism supplies the ferment, the body proteins constitute the substrate, the process is essentially constructive, no poison is set free, and there are no recognizable clinical symptoms. During the active progress of an infectious disease, the body cells supply the ferment, the infecting organism constitutes the substrate, the process is essentially destructive, the protein poison is set free, the symptoms of disease appear and life is placed in jeopardy.

Our work seems to show that the body cells, when overwhelmed with a foreign protein of the blandest kind—such as egg-white—may fail to function and death may result. There is no reason for suspecting that in these cases there is any cleavage of the foreign protein or the liberation of any poison. The body cells are simply clogged with the foreign protein and fail to function. We are not sure that this phenomenon has any parallel in the infectious diseases. There is, however, something closely related to it in cholera infantum, cholera nostras, and Asiatic cholera.

We have already referred to the fact that ferments may be modified in their activities. These modifications may be so radical that it is generally believed that cells may be trained, as it were, to develop new ferments. There can be no doubt that change in environment does alter activity as manifested through the ferments. As we have stated, it seems to be a biologic law that when a living cell is brought in contact with or permeated by a foreign protein, it tends to furnish a ferment which will digest and destroy the foreign body. The ferments of the cells of man's body may be modified or new ones developed by (a) disease, (b) vaccination, and (c) sensitization. Many of the infectious diseases give immunity to subsequent exposure. In some of the chronic infectious diseases the altered behaviour of the body cells to the infecting agent is evident even while the disease continues.

DISCUSSION.

DR. J. H. AGNEW: I have nothing to add that would be of any particular interest. I am always glad to hear Dr. Vaughan speak of this work, because I had the privilege of working with him, isolating some of the amino-acids of the cell substance of the colon

and tubercle organisms. It appears from Dr. Vaughan's remarks this evening that this feature, the structure of the protein of bacterial cellular substance, is of prime importance. It has been thought that bacterial proteins were simple substances but it has been shown in Dr. Vaughan's laboratory that they are quite as complex as proteins from other sources and therefore the same phenomena may be expected from them as from other proteins.

PROGRESSIVE BULBAR PALSY, ASTHENIC TYPE. (MYASTHENIA GRAVIS).

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A woman, age thirty-nine years, was admitted to the Hospital of the University of Michigan on February 5, 1914, complaining of marked difficulty in speech and deglutition. Her family history was negative; no member of her family, a large one, had any similar condition. She had an appendiceal abscess when twenty-five years old and was operated upon. The following winter she had "peritonitis." Menstruation began at fourteen, was regular but painful, sometimes accompanied by syncopal attacks. She was married at thirty and five years later gave birth to a dead fetus. Following her pregnancy the menstrual periods were less painful. While still in childbed she began having attacks of epigastric pain, nausea and vomiting, diagnosed later as due to "achylia gastrica and cholecystitis." She suffered from attacks of this sort until March, 1912, when she had the last one. Her present trouble began about one week after the last attack of the vomiting, when she noticed at dinner a difficulty in swallowing and a husky voice. Since then the condition has grown progressively worse except for an interval of a week about Christmas, 1913, when there was a slight remission. She had been in bed for ten weeks on account of her general weakness and has had to be tube fed for about the same length of time. There has been no pain in any part of the body at any time during this illness and no headache.

Examination made after her admission to the Hospital gave the following results. The patient was lying in bed with a general appearance of great exhaustion. She was markedly emaciated. Her face was expressionless. Her eyelids drooped about half way over the pupils. This drooping is said to be variable, much worse some days than others. There was no palsy of the extraocular muscles and the pupils reacted to light and in accommodation. There was slight nystagmus. There was no apparent weakness in the masseter or temporal muscles and sensation to touch and pinpoint on the face was normal. She could

not wrinkle the forehead but could corrugate the eyebrows slightly. The eyelids could not be closed completely and could not be held closed. She could draw back both corners of the mouth slightly but she could not whistle nor spit. She said that she felt a drooping of the lower lip and saliva occasionally drooled from the mouth. There was no impairment of hearing but bone conduction was lowered on both sides. The pharyngeal wall was anesthetic and the soft palate did not rise in phonation. There was no paralysis of the vocal cords (Dr. R. B. Canfield). The tongue could only be protruded slightly beyond the teeth and had a peculiar appearance in that the tip of the tongue was narrow and this narrowing extended about an inch to an apparent constriction about the tongue. There was no longitudinal growing as ordinarily seen in lingual atrophy and when the tongue was grasped with the fingers and pulled forward the constriction disappeared. There was no paralysis of the neck nor extremities and no sensory disturbances but the patient was so weak that she could not sit up nor hold up her head without support. There was no incontinence of urine or feces. There was marked general emaciation. The tendon reflexes were normal in the upper and lower extremities and there was no Babinski reflex. Mentally, she was perfectly clear and showed no retardation of thought. Articulation was much impaired; speech was slurring, typically bulbar and almost unintelligible. She had to be tube fed. The electric reactions in the facial muscles and in the tongue were normal both to the faradic and galvanic current. After tetanizing the tongue about one minute with the rapidly interrupted faradic current, the irritability diminished but was rapidly recovered by a few seconds rest, (myasthenic reaction). Repeated contractions by the kathode of the galvanic current (100 contractions at one second intervals) caused no change in the amount or character of the contraction in the muscles of the face or tongue. Her heart and lungs were apparently normal. She frequently had epigastric distress after being fed and sometimes vomited. Her bowels were constipated. The temperature was normal. Pulse rate varied from 90 to 160. The changes in the pulse rate were sudden and not explained by any change in temperature. The attacks of tachycardia would last from twelve to twenty-four hours and were accompanied by the increased respiratory rate. Respiration was from 20 to 40 per minute. The urine showed no albumin nor casts and no sugar. The blood count gave 3,950,000 red blood cells, 12,950 white blood cells, and hemoglobin, 78 per cent. Miescher method. Differential leucocytes count: neutrophilic polynuclears, 81%; eosinophiles, 1%; degenerates, 6%; transitionals, 5%; large lymphocytes, 7%; small lympho-

cytes, 6% (patient menstruating). The Wassermann reaction on the blood was negative. The lumbar puncture showed the spinal fluid to be clear and colorless. The pressure was about normal. Only one lymphocyte was found in 5 emm. The Nonne-Apelt reaction phase I, was negative; phase II, negative. The reducing substance was present in about normal amount. The Wassermann reaction on the spinal fluid was negative. The gynecologic examination (Dr. Reuben Peterson) showed retroversion of the uterus and pelvic adhesions. The ophthalmologic report (Dr. Walter R. Parker) was—"Retained nerve fibers, more marked in the left than in the right eye. Slight arteriovenous compression."

It is necessary to take into consideration a number of conditions in diagnosing a case like this but most of them are excluded easily. Post-diphtheritic palsy and pseudo bulbar palsy, due to bilateral cerebral lesions, are readily excluded by the history, and the same is true of so-called apoplectic bulbar palsy. The facio-scapulo-humeral type of muscular dystrophy gives a somewhat similar appearance to the face but does not cause difficulty in swallowing. Syringobulbia and brain tumor pressing on the medulla might give rise to the bulbar symptoms but the other signs of these affections are absent. Syphilitic disease of the brain might be thought of because of the history of a still birth and the reduction in bone conduction. However, there were no other signs of syphilis.

There are two types of bulbar palsy that are progressive. In the first of these atrophic changes are pronounced, the affected muscles show the electrical reactions of degeneration and the ocular muscles are not involved. This type occurs late in life, as a rule in the fifth and sixth decennium. A second type is the asthenic and myasthenic type. It occurs in younger individuals; there is usually ptosis, no marked atrophy and the electrical reactions are not those of degeneration but are the so-called myasthenic type. In the first type distinct pathologic changes are found in the medullary nuclei; in the myasthenic type such changes are not usually found. Dr. Kuh has recorded a typical case of this kind in which thromboses were present in the medulla. The prognosis is unfavorable in both types. Oppenheim records a fatal termination in twenty-six out of twenty-eight cases of the myasthenic type but it is quite possible for pronounced remissions to occur.

The etiology of this condition is not determined. It would seem as though congenital tendencies might play a part. In many of the reported cases anatomic peculiarities are noted—extra fingers or toes, web fingers, et cetera. In this case the retained nerve fibers is a peculiarity of the same order. Persistent thymus

and thymus tumors are frequently found at autopsy in these cases. Autotoxemias, chronic infections and tumor toxins have been regarded as etiologic factors.

REPORT OF A CASE OF RELAPSING FEVER.

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History.—The patient, Dr. C. P. age 37, was admitted to the University Hospital, January 19, 1914, complaining of headache, severe backache and a feeling of malaise. The paternal grandfather died of tuberculosis and twenty-five years ago his father died of pulmonary tuberculosis at the age of 48. The patient has had the usual children's diseases. For the past two years he has lived in Augusta, Georgia. He has never had malaria.

Present Illness.—The present illness began January 15, 1914 with malaise but he was not sick enough to stop work. Two days later he complained of "feeling miserable" and of headache over the eyes; also at this time he had an aching pain in the lumbar region. January 18, patient became much worse, taking to his bed with a poor appetite, complaining of feeling dizzy when on his feet. His temperature at this time was 101°. He had no shaking chills, sore throat, coryza, sweats nor vomiting; the bowels were regular and there was no urinary trouble.

Examination.—On examination the temperature was 102.4°, pulse 104, respirations 22. The patient was underweight and poorly nourished, somewhat anemic. There was no general glandular enlargement. Examination of the chest disclosed slight impairment to percussion over the right apex with harsh vesicular breathing and definite crackling râles, which were persistent after coughing. The heart was negative. A few crackling râles were heard over the right apex behind. The spleen was not palpable and the liver was apparently not enlarged. The urine and the stools were negative.

Course.—The temperature dropped to normal on the evening of the day of entrance and remained normal until discharge. This occurred by crisis, dropping from 101° to 98.6° in four hours. An examination of the blood showed 4,600,000 red cells, 3,000 white cells and 85% hemoglobin. Differential count: polymorphonuclear cells 62%, large lymphocytes 30%, small lymphocytes 6%, transitionals 2%; one normoblast and 8% degenerated large lymphocytes were seen. While making the differential count and looking for malarial parasites, one characteristic spirillum was found.

Diagnosis.—A diagnosis of relapsing fever was made and the patient given three tenths of a gram of neosalvarsan that afternoon.

Relapse.—The patient remained well up to February 1st., when he began to have a feeling of malaise and headache. He kept about until February 8th., when his headache became so severe as to make him take to his bed. He noticed pain in the lumbar region and considerable soreness in different parts of the body, including his testes. There was no definite chill. His temperature taken February 4th., was 99°. On February 5th. he had a temperature of 100° and on the 6th a temperature of 101°. From the 4th of February he ran a continuous, irregular temperature and on Monday, February 9th., he entered the Dermatologic clinic for another treatment. His temperature fell by crisis that same night. The spirillum was looked for in the beginning of his last illness on numerous occasions by Dr. Novy and his assistants. He was so sick on February 8th., that examinations on this day were omitted. A smear was taken on February 9th., but no spirillia were seen. I am sorry that the patient did not notify me of this recurrence, as he promised to do before he left the Hospital.

It is well known that the relapsing fever of America shows very few organisms in the circulating blood. I wish I had had an opportunity of searching for the organisms by centrifuging ten cubic centimeters of this patient's blood after laking the red blood cells. This method has worked very well in isolating tubercle bacilli and the embryos of trichinae.

The patient had been working in the bacteriological laboratory of the University of Michigan, although not directly with the spirillum of relapsing fever, but claims to have been bitten by rats inoculated with this organism. There is some evidence to show that the disease can be conveyed by contagion, such as clothing or the handling of the bodies of patients who have died of the disease. It has been definitely proven that the disease is transmitted by ticks, head lice, and possibly the bed bug. In 1905, Carlisle of the Bellevue Hospital reported two cases of relapsing fever, the second the result of the bite of an infected monkey inoculated with the organisms from the first case. S. T. Darling in the *Archives of Internal Medicine*, 1909, reports five cases of relapsing fever inoculations occurring either through the skin or due to the bites from infected monkeys.

Relapsing fever is a specific infectious disease frequently occurring in epidemics. An attack is characterized by a fever of about six days duration, followed by a remission of the same period, then another attack of fever, occasionally a third attack, rarely a fourth or fifth. The disease is self limited, rarely fatal in itself, death usually being due to complications, of

which pneumonia is the most frequent. The small mortality is found in the debilitated and aged. The incubation period is very variable, usually from five to fourteen days. There are very few prodromal symptoms, generally a feeling of malaise, the disease setting in abruptly, usually with a chill, followed by a rapid rise of temperature, rapid pulse, accompanied by continued and severe headache, dizziness and pain in the back. The general condition grows rapidly worse, forcing the patient to bed on about the second day. The appetite is lost, other gastric symptoms varying considerably. The headache continues with marked insomnia. There is usually enlargement of the spleen and liver and frequently a polymorphonuclear leucocytosis. Often on the sixth day there is a sudden fall of fever, by crisis, which usually occurs at night. About thirty or forty per cent. of the patients have only one attack, but during a relapse the organisms may again be isolated from the blood. Not infrequently the second attack is worse than the first.

The specific cause of the disease is due to an organism described by Obermeier of Berlin in the year 1873. The parasite is a delicate, colorless, spirally-twisted organism, resembling a fine thread of fibrin, about ten to fifteen microns in length. When found in the blood it is easily seen moving about among the red blood corpuscles, apparently never quiet, progressing forward or backward. No definite structure has been made out, although in some instances, a granular or beaded appearance has been noted. This was observed in our organism which was treated with Hasting's stain. The number of organisms found from day to day varies greatly. As a rule there are few early in the attack, but they gradually increase in number, reaching the maximum shortly before the crisis, when they decrease rapidly and may completely disappear. The cause of the disappearance of the organisms is unknown. The disease can be conveyed to another individual by inoculation of the blood during a paroxysm. Certain insects, such as bed-bugs, may suck the spirochete and in this way produce the disease by biting. Dr. Novy has suggested that there are probably four forms of relapsing fever in man. There are no characteristic pathologic findings in patients dead of the disease.

Intravenous injections of salvarsan or neosalvarsan in moderate doses, usually abort the disease or prevent further attacks.

DISCUSSION.

DR. FREDERICK G. NOVY: I am very glad to discuss this unusual case. The question of how these infections occur in the laboratories is an interesting one. The transmission by insects, the natural mode of infection, is practically excluded in these laboratory accidents, unless the work actually involves the study of such parasites. In some instances there

is no evidence at all of a bite caused by an experimental animal, such as the monkey or rat. There may even be no evidence of an injury, such as a scratch or cut which would facilitate the entrance of the specific organism. Under these circumstances one is obliged to seek for an explanation of such infection in the known fact that spirilla can penetrate through the unbroken mucous membrane and even through the unbroken skin. A minute drop of infected blood brought into contact, in some way, with the mucous membrane of the mouth or nose, or with the conjunctiva, is sufficient to bring about an infection. As a matter of fact this is one stage in the natural mode of transmission of the disease.

As regards the natural mode of transmission, I would like to emphasize one point already mentioned, and that is that certain insects are the natural means for the spread of the disease. We have two good illustrations of this fact. The tick fever of equatorial Africa is produced entirely by the bite of a tick, the *Ornithodoros moubata*. In Northern Africa and in Europe this tick does not exist and hence some other intermediate host must be sought for. The work carried on in Eastern Europe has not helped materially to clear up this point. In Northern Africa, more especially Tunis, the local relapsing fever has been shown conclusively to be spread through the agency of the body louse. Nicolle and his co-workers, in Tunis, demonstrated first that the mere lines of lice which had fed on infected animals did not produce the disease in man or monkeys. In other words, the bite itself was inoffensive although there was every reason to believe that the louse was the means of transmission. They found that the spirilla which were sucked up with the blood by the louse, soon disappear from the intestine and cannot be detected anywhere for a period of 8 to 19 days. The spirilla then appear, not in the gut, but in the lacunar cavity. Since infection of man does not follow the mere bite of such infected insects; nor result from fecal deposition on or about the wound, in the process of feeding by the insect, it became apparent that infection could only occur through the crushing of the biting insect and the consequent liberation of the spirilla. These may then come into contact with the wound; they may be carried by the finger tips to the eye, mouth, or nose, and thus give rise to the disease. These facts have been ascertained by direct experiments upon the laboratory staff.

A point that I want also to call attention to is the extremely beneficial results obtained with salvarsan. If there is anything in which salvarsan is good, it is in relapsing fever. In this particular case there was a relapse, following the first injection. An attack of the disease, or a relapse, can be jugulated by an injection of salvarsan, if given at the onset of the symptoms.

did not improve. During the afternoon he had a series of convulsions and his people became alarmed. Being unable to arouse him out of his stupor, it was finally deemed advisable to send him to the University Hospital. He was admitted to the Medical clinic at nine in the evening. At that time he had a rectal temperature of 104° ; he was stuporous and unresponsive. Shortly after admission he vomited. The vomitus was non-specific; however, to make sure, his stomach was thoroughly washed.

The history of the case was meager and one could, therefore, only speculate as to the probable trouble. Was he poisoned as his parents suspected? Did he have uremia, diabetic coma, apoplexy, epileptic stupor, cerebral syphilis or beginning delirium tremens? Any of these conditions might well produce a stupor with convulsive seizures. Inasmuch as there was no difference in the muscular tonus of the two sides, no stertorous breathing, and the temperature was not normal or subnormal, apoplexy was practically ruled out. During the following morning, he had a series of six convulsions which were epileptiform in type. His temperature was 103.6° , his breathing rapid. On the whole he was quiet. He did not speak, but when touched, he would look around. The examination of the heart, lungs and abdomen was negative. His urine contained a heavy trace of albumin and numerous casts, but no sugar, diacetic acid or acetone. Since he really was not comatose, and showed no evidence of air hunger, diabetic coma was improbable. The absence of diacetic acid and acetone in the urine ruled out that condition definitely. Uremia was not so easily disposed of; for that disease may commence suddenly, often with a loss of consciousness and epileptiform attacks. Usually the patients are confused, nuchal and delirious, though sometimes they may be sullen and apathetic. But since the urine showed only a trace of albumin and was not loaded with casts, it was not thought necessary to make a urea determination of the blood.

The microscopic examination of the blood added still another possible diagnosis. The examination made by Dr. H. Schmidt showed 3,400,000 reds, 24,000 whites, mostly polymorphonuclear and a hemoglobin of 83% Miescher. The study of stained blood smears revealed marked anisocytosis, considerable polychromasia and large numbers of basophilic stipple cells. No nucleated reds were seen. In other words the blood picture strikingly resembled that of lead poisoning. This was, indeed, interesting, for plumbism might well produce the entire symptom complex. The mental and cerebral symptoms in lead poisoning, classed under the head of encephalopathia saturnina, are usually hemianopsia, delirium, coma and convulsions, mostly of the type of general-

A CASE OF KORSSAKOW'S PSYCHOSIS COMPLICATED BY CEREBRO- SPINAL SYPHILIS.

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Mr. M. was found on Sunday morning December 9, 1913, in an unconscious condition in the back room of a downtown saloon. At first his friends thought that he was drunk as usual but this idea was abandoned when his condition

ized epilepsy. Though he had occasionally assisted in the painting of barns, it was learned that he had not done any work of that kind since June. Examination showed neither anemia, wrist drop nor a lead line on the gums. Subsequent chemical analysis did not reveal even a trace of lead in the urine and so the hope of a striking diagnosis vanished.

During the afternoon he became so restless and apprehensive that it was difficult to restrain him in bed. Fearing delirium tremens, he was committed to the Psychopathic Hospital on an emergency order. Soon after his transference, he became quieter and took liquid nourishment in large quantities. With the aid of a dram of paraldehyde, he slept six hours the first night. On the following morning his bowels were exceedingly loose. He co-operated to some extent with the attendant. He looked apathetic and sleepy. To most questions, he answered with absolute indifference "Oh, I don't know." Two days later his temperature again went up to 103°, the breath sounds over the right side of the chest were harsh and the expansion somewhat decreased. A central pneumonia was suspected; however, the temperature did not stay up long and the breathing soon became easier. During the next three days, he improved considerably. He looked and felt better and answered questions more promptly. He thought it was Thursday, August, 1999, and that he was over Myer's saloon in Ann Arbor. He asked for Miss S. and said that he had seen her several times that morning. He gave Washington as the president of the United States and said that he had been elected by the progressives. When questioned later regarding his drinking habits, he admitted that he had indulged heavily for the last ten years. Usually he consumed from five to six bottles of beer a day. About once a month, he went on a drunk for two or three days. On these occasions he mixed his drinks. This last time he got in with some cronies from Jackson and they were together Thursday and Friday, consuming half a barrel of beer and several quarts of whiskey. He remembered being at Myer's beer-house after they had left, but for the time that elapsed between Friday and Thursday morning he is amnesic.

Judging from the account obtained from his mother, it is evident that he comes from a family of low type with a history of alcoholism and pauperism. The maternal grandfather was a heavy whiskey drinker and an occupant of the Washtenaw county house for years. Two brothers of the mother, the maternal cousins and one of the patient's brothers are heavy drinkers. The patient is said to have developed normally. It is not known how much schooling he had. He stopped somewhere around twelve because of his unwillingness to continue. He

worked as a farmhand and later as a common laborer. He commenced drinking at about nineteen, but it was only during the last five years that he has drunk to excess. He takes something every day and according to the mother he is intoxicated four or five times a week. Without liquor he is extremely nervous and practically helpless. During the last year, he has done odd jobs, helping around saloons, painting a barn occasionally and collecting junk. There is no history of epilepsy in his own past life. Epileptic stupor was, therefore, unlikely and in view of the subsequent developments, entirely out of the question.

He is a man thirty-nine years of age. Examination revealed an enlarged liver, but normal blood pressure and normal vessels. There is a smooth scar back of the corona, which he said resulted from a hard sore four years ago. The left pupil is a little larger than the right. Both react fairly well to direct and consensual light stimuli and in accommodation. The extraocular movements are fairly well performed. The acuteness of his taste is diminished. He shows considerable hyperalgesia and hyperesthesia. He is sensitive over the nerve trunks of the extremities. The left knee jerk is present and about normal. The right knee jerk and the left Achilles jerks were absent even on re-enforcement. There was a questionable Babinski on the right. There were, therefore, numerous polyneuritic disturbances which might well be produced by chronic alcoholism. But why did he not clear up after his acute delirious episode? Was he passing into Korsakow's psychosis? This condition might well be expected in view of his heavy drinking. Twenty-five per cent. of the cases of Korsakow's psychosis according to Kraepelin do begin with an acute delirium, sometimes with epileptiform attacks. Instead of clearing up within a few days, they pass over into a chronic state showing apathy, irritability, marked memory defect, confabulation and polyneuritic disturbances.

Re-examination of the urine December 11, 1913 showed a trace of albumin and numerous granular casts. The blood count made on the same day showed 4,200,000 reds and 24,000 whites. Five days later the white cell count had fallen to 20,000. On neither occasion could any stipple cells be found in the smears. The cerebrospinal fluid examined on December 16 contained 38 cells per cmm.; the globulin test was positive in a dilution of 1 to 10; Nissl-Esbach 3.0. The Wassermann was four plus positive both on the blood and the spinal fluid. Here was another complicating factor. Was his attack due to a combination of alcoholism with general paralysis? Was that the reason he did not clear up from his acute delirium? But his infection was only four years ago and the

peculiar polyneuritic disturbances could hardly be produced by general paralysis.

For two weeks after admission to the Psychopathic Hospital he continued to be disoriented, always thinking he was over a saloon and that he had been there about four days. He was unable to return numbers of five digits and when short stories were read to him, he could not repeat them. He was unable to detect the most evident absurdities. He had some difficulty with the usual test phrases. Even in writing his name he made numerous mistakes, such as reduplications and transpositions. He also showed a slight tremor. He could not write Ann Arbor or the word saloon. In writing the abcs he only got as far as b and ended with *or*, still thinking that the physician wanted him to write Ann Arbor.

On December 20th, early in the morning, he had five severe epileptiform convulsions, each lasting about four minutes. He was unconscious for over two hours, but after that he was as clear as usual. By the third of January, 1914, he had gained five pounds in weight and as a consequence he had improved considerably in appearance. Though oriented, he still was unable to repeat short stories when they were read to him, but when a story was told him in simple slang fashion, he gave most of the details fairly accurately. There was no tendency to confabulation. He did very poorly in writing the alphabet. He rarely got beyond d or f and then often repeated many of the letters given previously. He excused himself by saying he never went to school more than three terms. In writing his name, he still showed a slight tremor and added an extra letter. Re-examination January 10th showed that the reflexes which had been absent had returned, though they were still much diminished in comparison with their fellows. His station and gait were normal and there was not even a questionable Babinski. Though he could add and subtract successive sevens correctly, he could not figure out what year it was seven years ago. A second lumbar puncture made January 3rd showed 32 cells per cmm., globulin positive in dilution of 1-5, Nissl-Esbach 1.5 and again a four plus positive Wassermann. Both the cell count and the globulin were, therefore, less than on the first examination.

During the last month he has continued dull and uninterested. Whenever he cannot answer questions, he becomes irritable and refuses to co-operate further. He knows the name of only one of the physicians. Even when speaking of his friends downtown, he rarely is able to give their names. He is correctly oriented and knows approximately how long he has been at the Hospital. He has no conception of the seriousness of his condition before coming to

the Hospital; he knows no more about it than what his father told him. His perception is better on the whole and he can figure out what year it was seven or thirteen years ago. There is now no noticeable articulatory defect in his spontaneous speech. The urine and blood are negative. A third lumbar puncture made on February 7th showed a cell count of seven, Nissl-Esbach 1.2 and globulin positive in equal quantities but negative in dilution of 1 to 5. The Wassermann is still four plus on the blood and the spinal fluid. The cell count, globulin, and Nissl-Esbach have, therefore, come down to practically normal. These findings make the presence of general paralysis very improbable.

According to the reports of Assmann (2), Nonne and Holzmann (3), Betz (4) and Peyton Rous (5), the cell count, the globulin and albumin are normal in cases of chronic alcoholism and Korsakow's psychosis. This agrees with the fluid findings of the four cases of chronic alcoholism (two of which were cases of Korsakow's) that were punctured at the Psychopathic Hospital. In two cases the Nissl-Esbach was slightly increased. But inasmuch as this patient has a persistent Wassermann on the spinal fluid, cerebrospinal syphilis cannot be excluded. Since there was a progressive improvement in the cytologic and chemical findings of the cerebrospinal fluid, one might infer that a latent luetic process had become temporarily active by reason of the alcoholism.

We have then a man who has been a heavy drinker for years, taken down suddenly with epileptiform convulsions, passing over into a stuporous state and then into an atypical delirium. This gradually cleared up, leaving him dull, apathetic, and with polyneuritic disturbances, marked defect in his memory and discrimination, but showing no tendency to confabulation.

In view of these findings, the diagnosis of Korsakow's psychosis combined with cerebrospinal syphilis seems warranted.

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DISCUSSION.

DR. H. B. SCHMIDT: This patient entered the Medical clinic as an emergency case. An examination of the blood disclosed a considerable amount of stippling of the red blood corpuscles. As there was practically no anemia, lead poisoning was considered as a probable cause of his coma and convulsions. There was no lead line present, but as we know that in either acute or chronic intoxication from lead, especially in alcoholics, delirium, delusions

and coma may be present, we still considered lead encephalopathy as a diagnosis. A sample of his urine was examined by Dr. Vaughan on two occasions and found negative for lead.

He remained in the Medical clinic only a short time, about thirty-six hours, and re-examination of the blood with Unna's stain showed that the stippling had almost completely disappeared and was not typical of lead poisoning, in that the granules did not take the red stain. This is very important in differentiating the stippling of the red cells seen occasionally in a normal blood from that seen in severe anemias and lead poisoning.

AN ESTIMATE OF THE VALUE OF THE WASSERMANN REACTION TO THE GENERAL PRACTITIONER.

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The last decade in medicine has seen an enormous growth in knowledge concerning syphilis. Indeed, it may be said that in no other field of medicine, either clinical or experimental, has there been greater progress made than in the study of syphilis. The discovery in 1905 by Schaudinn and Hauffman, of the infecting organism, and of the complement fixation test of Wassermann were forerunners of an epoch of research which has resulted in a great accession of knowledge to the practitioner of medicine and incalculable benefit to mankind.

It was my good fortune to have been one of the first American students of the complement fixation test, to have performed this work under one of Germany's foremost serologists. It has fallen to my lot of late on several occasions to defend this wonderful laboratory test before early sceptical audiences. I have recently expressed myself as favoring, for the protection of the hospital staff, a routine, compelling all entrants into hospitals to submit to the Wassermann test before their admission. I mention this positive stand which I have taken to offset any idea which may arise from the theme of my paper this evening. I wish to point out herein that notwithstanding the enormous gain which the complement fixation test has brought to clinical and experimental medicine, its wide and indiscriminate use has not been entirely without disadvantage to the practicing physician.

A proper estimate of the value of the Wassermann reaction to the practicing physician must take into account, first, the limitations of the reaction itself, and, second, its judicious application. With regard to the first factor, it must be admitted at the outset that there is a great variability in the technic of the reaction as it is carried out. There is even a daily difference in the efficiency of the various reagents. Secondly, in a reaction so complicated and so delicate, there are constant sources of error

cropping out, and lastly, the question of the personal equation enters into the interpretation of the test. For example, in a doubtful case, what to one observer's eye and judgment is read as a partial hemolysis, may be interpreted as doubtful by him; a second observer might read the same test as faintly positive and a third might regard it as negative. It has been my custom in important cases to divide the specimens and to compare the readings of two different observers of the clinical findings and thus place a check, as it were, on the result of the test.

First and of paramount importance, the practicing physician who wishes to employ the Wassermann reaction must know the ability of the laboratory technician who is to carry out the test. Within the past few years, numberless advertising laboratories and even druggists have placed their resources at the command of the practitioner for the performance of the complement fixation test. I am satisfied that for the most part their work is entirely unreliable.

A second point of no less importance has to do with the limitations of the test itself. Far too often is the fact forgotten that in the first stages of the disease, and practically during the entire period of the development of the chancre, the test is uniformly negative. A test taken at this time is, therefore, useless. It is regrettable that a negative outcome at this period is still interpreted as negating syphilis, to the chagrin of the physician at a later date, and occasionally to the irreparable damage of his patient.

During the secondary period, the reaction may be said to be more uniformly positive, and probably the fewest errors are made during this period. But even here, a negative outcome may trap the unwary. The most malignant, precocious types of syphilis are occasionally characterized by a negative reaction. During the past year I have seen two such cases—in the first a profuse follicular, and in the second a rupial, syphilid. Both were frankly negative in the blood. In the tertiary stage of syphilis, according to different observers, from fifteen to thirty per cent. of all cases react negatively. Taking the lowest estimate, the physician who places his sole reliance on the outcome of the test, takes a fifteen per cent. chance of being wrong. In hereditary syphilis with manifold lesions, practically all cases react positively, but in the latent stage, a negative reaction is not infrequent, and it often occurs that children whose blood at birth is negative, develop syphilis within a few weeks after the test has been taken.

Of great value to the general practitioner is the employment of the test upon wet nurses. It goes without saying that no woman should

be engaged for a healthy infant who has not first submitted to the Wassermann test.

A not uncommon error where entire reliance is placed upon the outcome of the test is found in the fact that the patient may have a latent syphilitic infection which is in no way connected with the condition for which he requires active treatment. In particular does the diagnosis of abdominal and thoracic neoplasms thus suffer from a lack of clinical study. The presence of a positive reaction in such cases is, it is true, evidence of a syphilitic infection, but only presumptive evidence that the condition in question is due to syphilis. In cases such as this, in fact in all obscure cases, the result of the test should be carefully weighed against the clinical features of the disease.

The greatest importance, however, attaches to the value of the test as a guide to the efficiency of treatment. A decade ago and before, careful medical men followed the teaching of a great syphilologist who taught that syphilis must be treated at least two years, and better, three. This was a purely arbitrary rule based upon a vast experience which showed that if treatment were carried out energetically for this period of time, patients remained well, had no late lesions, and could safely marry and be the progenitors of healthy offspring.

We now know that some syphilitics get well within a year; that others require two or three or more years to cure; and that some, indeed, never get well. It was an early observation in the history of the complement fixation test that a positive reaction tended to become negative under treatment, if the latter were efficient and persisted in. Frequent reactions, therefore, taken during the periods of repose in treatment serve as an excellent guide as pointing to the efficiency of our treatment. Here again, however, a word of caution. A negative test taken during the time that the patient is under treatment is of no significance, and no test should be made until at least from four to six weeks following cessation of all treatment. During the past week, I was consulted by a man who came to me, as he said, for a blood test. He had contracted syphilis last July. A blood test taken one week after an intravenous injection of salvarsan, and at a time when he was taking mercury, was said to be negative, and his physician pronounced him cured. There was no need for a second blood test. The examination revealed recurrent lesions in the mouth and a papular syphilid of the chin.

In general, it may be said that a negative reaction gains in value and significance with each succeeding negative test, and a cure should never be pronounced until the reaction has remained negative on several successive trials.

While it is undeniably a fact that a persistent positive Wassermann means a latent infection,

it is nevertheless also a fact that occasionally patients in a latent stage of syphilis will have a positive Wassermann reaction which remains so notwithstanding all forms of treatment. Such cases not infrequently remain in perfect health. They marry with impunity and become parents of healthy children. Such cases occur particularly in those in whom treatment is begun late in the course of the disease. While it is a fact that a positive Wassermann in the active and early stages of the disease means the occurrence in the blood of antibodies or immune substances which are called forth by the presence of the infection itself, yet it appears not unlikely that in these cases with persistent Wassermann reactions which resist all forms of energetic treatment and yet remain perfectly well, the presence of complement binding substances is due to a chronic change in the blood not necessarily activated by living spirochaete. Personally, I have seen a number of such cases in which matrimony or the resumption of marital relations has resulted in perfect children and in nontransmission of the infection to the mate.

There is, as you all know, in a neighboring state, a law which requires all candidates for matrimony to submit to a Wassermann test. Although the wisdom of such a law is unquestionable, its application at the present time is difficult. While a step in the right direction, it is, if carried out on the blood alone, really a half-way measure. To give a man or woman a clean bill of health, not only should a test be made on the blood but also upon the spinal fluid. A certain percentage of cases of cerebrospinal syphilis, active and latent, is negative in the blood and positive in the spinal fluid. Obviously, permission to marry should be withheld in such cases as these. Moreover, the ends of such a law may be defeated by the fact that the reaction may be temporarily inhibited by active treatment coincident with the time of the taking of the test. A careful physical examination at the same time will usually, offset this possible error. It is, perhaps, a matter of a short time when all states will have similar statutes on their books, and for uniformity of results, it will then be necessary to establish state laboratories of serology.

I wish now to turn to the second axiom of my theme—the judicious application of the test. While it is true that the Wassermann test has cleared up many hitherto obscure conditions and placed them on a syphilitic basis, it is nevertheless also true that syphilis in all its forms was recognized before the days of laboratory aids. The statement that the indiscriminate use of this test in practice is making for poor clinicians, is not, I think, too broad. We are losing in medicine that fine type of mind which made for keen observation and deductive reasoning.

There is no cutaneous nor mucous membrane syphilid which requires a Wassermann test for its diagnosis. The careful surgeon can and should be able to differentiate gumma from sarcoma or tuberculosis of bone. A discriminating internist of the older school required no Wassermann test to diagnose syphilitic cirrhosis or early syphilitic anemia. The countless manifestations of syphilis are not difficult of clinical recognition if care be given to their study.

The teaching of syphilis in our schools should be, I believe, toward the development of that faculty of keen observation and deductive analysis which characterized the clinician of an older day. If more time were expended in developing such faculties, we would then be equipping students who were capable of recognizing a chancre without a dark-field, and who would reflect twice before operating on gummatous lesions.

In conclusion, permit me to advise the general practitioner to make use of the Wassermann test, but to use it very judiciously; to be sure when using it of the laboratory technician's ability; to avoid its frequent use as a diagnostic aid by acquiring through study of syphilitic lesions and manifestations the diagnostic touch and eye which makes the unravelling of disease processes ever a new and fascinating study.

DISCUSSION.

DR. WILLIAM A. PUSEY, Chicago: I am glad to hear Dr. Wile discuss the Wassermann reaction and I am surely in accord with most of what he says. There is one point that Dr. Wile made which should be especially emphasized—that the Wassermann is not always positive in the presence of active syphilis. Some syphilographers insist that they get a positive Wassermann in all active syphilis. If there is a chance of twenty per cent. negative reactions in the presence of active syphilis, one is up against the possibility of making a great many mistakes. I am reminded of a case I saw a year ago—a man with a perfectly clear ulcerating syphilid of the leg. He had a negative Wassermann and, because of this,

his doctor excluded syphilis. I said to the man, "This is syphilis." "It is not syphilis," he said. "I wish it *were* syphilis—I might get well if it were I had a negative Wassermann. I haven't had syphilis for twenty years."

I do not agree with Dr. Wile in his statement that repeated negative Wassermanns indicate that the patient is well of syphilis. In McIntosh and Power's book there is a discussion as to when a patient can be pronounced cured of syphilis. "Only after repeated negative Wassermanns extending from one to two years, and often conscientious syphilologists can only say so after twenty years." I should say that conscientious syphilologists could *never* be sure that a patient is absolutely well of syphilis. Regardless of the disappearance of symptoms, the syphilitic infection may remain and reappear years later.

Dr. Wile says that no patient with a positive Wassermann is entitled to marry. As a matter of fact, for many years I have assumed that after five years of cessation of symptoms of syphilis, syphilitics could marry. Jonathan Hutchinson used to let most of his syphilitics marry after two years. Fournier allowed his to marry after five years. It is a rule, however, that may be followed by disastrous results. This means that a vast number of men marry after five years who have a positive Wassermann, for a vast number of syphilitics remain positive intermittently for life. Some of these patients marry and raise healthy families. In the face of that fact, however, I think that a man is not entitled to marry after five years with a positive Wassermann. We cannot give anybody absolute assurance of having healthy children, no matter who he is. In the present condition of our knowledge, I think we are not warranted in taking that hard and fast stand with regard to the Wassermann.

DR. WILE (closing the discussion): Dr. Pusey and I do not differ very much after all with regard to the ability of patients with a permanent positive Wassermann to marry and have healthy children. That is a point which I emphasized in my paper and I agree with Dr. Pusey that, while we cannot assure them of healthy offspring, the fact, remains in the absence of all symptoms for many, many years that such patients remain well. I do believe, however, that a negative Wassermann gains in value with each successive test and that there comes a time when we should take upon ourselves the responsibility of saying that the patient is well. This, therefore, must remain a difference of opinion between us.

The Journal

OF THE

Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

PUBLICATION COMMITTEE

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All communications relative to exchanges, books for review, manuscripts, news, advertising, and subscriptions are to be addressed to Frederick C. Warnshuis, M. D., 91 Monroe Ave., Grand Rapids, Mich.

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APRIL.

Editorials

THE USE OF IODINE IN SURGERY.

In 1905, Senn¹ and Kinnaman² came to the following conclusions regarding the antimicrobial and antiseptic properties of iodine:

1. Iodine is the safest and most potent of all known antiseptics.
2. Its germicidal power is far superior to that of bichloride of mercury, the acknowledged leader of all other antiseptics.
3. It approaches nearly to the ideal antiseptic.
4. A 0.5 per cent. solution is amply strong.

The rise and fall in the repute and confidence of therapeutic agents on the part of the profession are subjects of deepest interest to every progressive student. Only too often the claims made for a remedy in the treatment of certain diseases are not substantiated when subjected to an impartial trial by a scrutinizing profession. And so in regard to iodine we are commencing to note here and there a lack of confidence in regard to its antiseptic properties and find some recommending the abandonment of its use in surgery. Personally we are inclined to resent such suggestions as we are strong in our faith in iodine and while we admit that iodine is not always a perfect antiseptic in every instance, yet we feel that it is still entitled to being credited as our ideal antiseptic and when properly used it will give us most satisfactory results not obtainable by other measures.

Too often the iodine method is blamed for resulting infection when in reality the untoward results was due to a faulty technic. The iodine preparation technic must be rigidly observed and when the entire chain is maintained intact we have never regretted placing our faith and reliance in iodine during the past ten years.

The most common errors that may be observed in its use is the shaving and cleansing of skin with soap and water, immediately followed by the application of the iodine. If the field of operation requires cleansing and shaving in such a manner this should be done at least two hours before the immediate operative sterilization with iodine. The reason for this is that water causes a swelling of the epithelium and prevents the penetration of the iodine and thus the destruction of deep seated bacteria and their spores is not accomplished. If emergency prevents the observation of this precaution then the shaving is to be accomplished without the use of water. Again, iodine that is older than a week should not be used because its strength is reduced by evaporation on account of its volatility. The objection has also been raised that blistering often results. We have never experienced such an incident and attribute its absence to a careful technic.

The technic employed is that of Bastianelli, of Rome, and is as follows:

The field of the operation is cleansed and shaved the afternoon previous to the morning of the operation and all soap is thoroughly removed by copious bathing with as hot water as can be born and then washed with ether. When brought to the operating room the field is *scrubbed*—not lightly gone over—with C. P. Benzine containing iodine crystals in the strength of 1 to 1000 (Solution 1.) When this solution has dried the skin is freely painted with a fifty per cent. alcoholic solution of the tr. of iodine (Solution 2) which is allowed to dry thoroughly; the field is now considered properly prepared. In emergency work the same technic is employed except that the shaving is done *without* soap or water. The solutions are made fresh each week and are kept in glass stoppered bottles.

Of 5835 surgical operations performed in the Mayo Clinic in 1912 there occurred 111 infections. If this number of infections occur in a clinic so well regulated as is the Mayo's it is not to be wondered at that we, who are compelled to operate under less favorable conditions and environments and with frequently changing assistants, should experience an occasional infection in spite of a rigid observance of those measures employed to guard against it. It, therefor, little behooves us to immediately credit the blame to iodine, rather should we seek elsewhere for the exciting cause.

Until we are possessed of reliable data demon-

1. Surg. Gynec. and Obst. Vol. 1 No. 1.

2. Journ. A.M.A. July 1905, Sept. 1905.

strating the unreliability of iodine as an antiseptic agent and as long as our personal experiences continue to be as satisfactory as they have in the past we feel that we will be inclined to resent all efforts calculated to discredit the value of iodine. At present we feel that the critical spirit rests solely with those who have failed to employ the entire approved technic or, are seeking new and other methods to satisfy their roving, restless temperaments that impel them to cast about for something more recent and "more modern" though actually less reliable. However, we invite a free discussion of this subject.

THE COUNCIL ON PHARMACY AND CHEMISTRY.

The editor acknowledges receipt of the 1914 edition of "New and Non-official Remedies," issued by the Council on Pharmacy and Chemistry of the American Medical Association. In connection therewith we are taking this occasion to state that of all publication this book should be on the desk of every member of the profession. It is a compendium filled with valuable information regarding many medicinal preparations of proven value, reliability and therapeutic potency; further, it enables one to judge as to the worth of any preparation and enables the doctor to distinguish them from the host of utterly useless, non-potent and quack nostrums with whose literature every physician's mail is daily flooded. This book may be secured by remitting twenty-five cents to the Secretary of the Council on Pharmacy and Chemistry of the A.M.A., 535 Dearborn Ave., Chicago, Ill.

Each passing year demonstrates more forcibly the wisdom of the plan that inspired the establishment of this Council. It is difficult to estimate the good it has accomplished for the sole benefit of physician, druggist, pharmacist and manufacturer. Maligned, opposed, restrained and hampered on various sides, the Council has persistently and diligently continued its work and has imparted to the profession "The Truth About Medicines." Truths, indeed startling at times, which have cleared the haze of fraud, deception and unreliability as well as worthlessness that surrounded many of the preparations that were being manufactured and advertised as possessing therapeutic possibilities that were wholly unwarranted and unreliable. The good has been culled from amongst the worthless and bad and he who desires may now readily secure trustworthy information that will enable him to determine what are and what are not potent agents. No longer are we compelled to depend upon the manufacturer's or detail man's statement. This book supplies the requisite information. Secure it.

Speaking of "Detail-men"—we have been accustomed for the past two or three years to greet each such person presenting a new preparation with the question: "Is it approved by the Council?" This was the first requisite to secure our time and attention and no time is wasted in listening to any claims made for any preparation that does not possess the Council's approval. We feel that any preparation of intrinsic merit may readily receive a favorable report if it but complies with the rules of the Council. The manufacturer can no longer afford to ignore the Council and the physician cannot well afford to prescribe any preparation that has not been submitted and approved. This statement will be refuted by the representative that calls upon you and when he does just draw his attention to this letter which we have extracted from the *Journal of the A.M.A.* in the issue of March 14, 1914:

"To the Editor—Detail men as a class have a rather poor opinion of physicians they visit. This may not appear in the regular monologue but it always comes out on cross-examination. If you stop a detailer in the middle of his rime and put a query of your own, he soon shows how little he knows about the subject he is trying to teach, and how much less he thinks you know about it.

If you timidly mention a report of the Council on Pharmacy and Chemistry which differs in any particular from the data handed out by the monologist, he never hesitates to tell you bluntly of what a parcel of pikers the Council is composed. The secretary of the Council, who signs these ridiculous reports on proprietary preparations, is merely trying to satisfy a personal grudge which it seems the secretary has long nursed against various and sundry proprietary manufacturers! So a Mulford representative recently complained; also a Salhepaticolite.

"Looking back over several years, I recall but one thing a detail man ever told me which was worth the time given him. That was a secret imparted by a Glycothymoline agent.

This Glycothymoline man was so jovial and good natured that it was utterly impossible to show him the palms of my hands. And besides, he started right off the bat to put me down for several extra pint bottles to follow up the good work he hoped I would do with the dozen small sample vials, each with the name blown in the glass to insure the doctor against substitution by unscrupulous druggists—though just how the u. d. was to effect the change between the doctor's office and the patient's hands the agent did not take time to explain. In fact his talk was very much like this paragraph—rambling on and on, without a pause for breath or interruption, until you hardly know at the end just what was said at the beginning, and before you can collect the thread of thought the agent is off again on another long tack and you trailing after him like a bather on a plank towed by a speed boat.

But at last the agent choked on a long word, and while he paused for a fraction of a second to clear his throat I seized the opportunity and remarked that I never prescribed things with the name blown in the bottle, nor had I any need for Glycothymoline. The National Formulary furnished me a perfectly satisfactory preparation in cases which needed an alkaline wash.

This was quite a long rejoinder for a doctor

to make in such an interview, I am well aware, but you see the man was almost choking and he could not stop me as soon as he would have liked. Presently, however, he swallowed that long word and raised his admonitory index-finger.

"Ah, but that's just the trouble with the N. F. imitation, Doctor," he declared. "That's just the trouble. I'm glad you brought that question up. The N. F. imitation isn't alkaline at all—it's acid, irritating. I know, because I worked in a drug-store myself and I've made gallons of the N. F. stuff—barrels of it, and it's acid, irritating. Now our product—"

"No, No," I shouted, gathering all my available strength and catching the agent on the end of his wind, "No, I've prescribed it and know it's alkaline, and not irritating."

But the agent, like the old lady's companion in the Mother Goose book, simply would not get over the stile, so we decided to test the thing. We got some red litmus paper and a bottle of Liquor Antisepticus Alkalinus, N. F., which I happened to have in the office. We thrust the red litmus into the solution and got the most beautiful reaction—the bluest detail man I ever saw.

"Well, that's one on me," he admitted after a long and alarming silence. "I'll admit I'm in wrong. But our product has a purer alkalinity anyhow."

"Purer nonsense!" I replied. "Now you're sparring for wind, aren't you, really?"

Then the agent gave up. "Doctor, I'll say this much," he confided as we shook hands. "Most of the doctors I call on swallow most anything a man says. I'm darn glad they ain't all so particular! Good-by!"

And the moral: Why is a detail man anyway?

WILLIAM BRADY, M.D., Elmira, N. Y."

Why is the detail man? We don't know and further we do not care for our time is not at his disposal unless he is supplied with recognized credentials for his preparations. For this conservation of our time we acknowledge our indebtedness to the Council and feel that it is meriting the support of the profession of Michigan—start right by securing a copy of *New and Non-official Remedies*.

Editorial Comments

The pernicious practice of "fee-splitting" would soon be eradicated in this state if the management of the various hospitals throughout Michigan would adopt the course of the Board of Trustees of the Grace Hospital in Detroit as outlined in the report of this Hospital appearing in the columns of the *Society News* in this issue. If every hospital board denied the privileges of their hospital to every surgeon guilty of the secret division of fees, and permitted only those who refused to be parties to such commercial transactions and solicitors for surgical and consultation cases to use the hospital equipment, this evil would soon become extinct.

We trust that every hospital board in the state will give this matter their serious consideration.

As this edition goes to press there remain in our drawer, which we utilize for filing original articles, but two papers for publication in our May number. Hence we are flying a signal of distress.

The *Journal* is running on an average of ten original articles in each issue. This means one hundred and twenty original articles a year. Surely our State, containing 4000 physicians, is capable of supplying its official publication with one hundred and twenty high grade, instructive, practical and valuable original articles, and not cause your editor to go begging for copy. We are confident that you will immediately respond to this call and so obviate our sending out our May number with but two original articles.

Are your society meetings being reported in our columns? If not will you not endeavor to see that provision is made at your next meeting to the end that your society meetings will be promptly reported in the succeeding issue of *The Journal*?

The movement to guard the citizen of tomorrow in the child of today, the movement to make our children strong in body while we make them strong in mind, the movement to protect the poor in their right to sunlight, the movement to make our government more full of care for the weak while not unresponsive to the right of the strong, the movements which have produced playgrounds, bathing pools, vocational schools, good government clubs, non-partisan municipal politics, wherever these movements have gained momentum and have expressed themselves in a richer community life, there has that spirit asserted itself which is characteristic of the true physician of today, and his presence as well as activity has revealed itself on every such occasion. Our profession has recognized and grasped these golden opportunities and acquitted itself with glory and becoming dignity to its everlasting honor.

Every change in society is the product of an interplay of forces, as men rarely act from simple motives, so likewise, do social forces rarely express themselves in single movements.

The up-building of efficiency and the reinforcement of character—this is at once the true meaning and purpose of organized medicine. It will strengthen us to meet the largest responsibilities of our lives. It will make us fit for greater accomplishments. The wheel of medicine has ever turned modestly. We who are the cogs of the wheel delight in the music

of its turning. May we never be unmindful of our responsibility.

The *Journal* is costing 24 cents per copy, or \$2.88 per year of 12 issues per member. Deducting your dollar paid for subscription the deficit remaining of \$1.88 per member must be defrayed by the revenue derived from our advertising sales. Unless the advertising space is a profitable investment for the advertiser he will refuse to purchase it, and to avoid bankruptcy we will have to cut down our expenses by sending you a smaller, less expensive publication. You can avoid compelling us to adopt this latter plan by patronizing our advertisers and telling them why you are doing so. Let's all boost together and thus satisfy advertiser, reader and publication committee—profit sharers from such a boosting propaganda.

The reader is referred to our correspondence column and the letter of Dr. Walter R. Parker of Detroit relative to the work that is being undertaken by the Committee on Conservation of the Vision of the A.M.A. The importance of this work is sufficient to merit the co-operation of every county society. Dr. Parker is desirous of your earnest individual and collective support.

In our correspondence department will also be found a letter describing the establishment and purpose of the Medico-Legal bureau of the A.M.A. Such a bureau is bound to be of distinct service to our members, and its establishment is but another direction in which the A.M.A. is advancing the interests of the in-

Deaths

Dr. J. B. Egglestone.—Aged 63 years, a member of the Democratic State Central committee for 20 years and chairman of the Lapeer County Democratic committee for 12 years, died suddenly at his home Feb. 19 at Imlay City. Dr. Egglestone, one of the most prominent physicians in Central Michigan, was active in Democratic politics for many years and was postmaster at Imlay City during Cleveland's first administration. He was stricken with convulsions on Tuesday and did not regain consciousness.

Dr. Egglestone was born in Wentworth coun-

ty, Ontario, May 16, 1851, the son of Harris and Elizabeth Egglestone. He received his early education there and later entered Trinity college. He was graduated from Toronto College of Medicine in 1879 and after a few months as resident surgeon at Guelph hospital came to Imlay City.

He had held almost every office in Imlay City, serving several terms as president of the village since his term as postmaster. He was married in 1883 to Miss Jennie Handley of Imlay City. Besides his wife he leaves three daughters, Mrs. Richard Loveland of Jackson, Mrs. Tom White of Lapeer, and Miss Phyllis Egglestone who lives at home.

Dr. Egglestone was in Flint on Saturday last and spent the afternoon with Hon. E. O. Wood.

Dr. Egglestone was well known and the news of his death will be received with profound sorrow.

Dr. G. W. Nafe.—On February 24th, 1914, Dr. G. W. Nafe was found dead in his office. The doctor had been in ill health for over two years and had but recently recovered from an illness of four weeks. The cause of death was myocarditis.

He was the oldest practitioner in Newaygo County, having been located at Fremont for about forty years, and up to two years ago had a very large practice. Ill health, however, had compelled him to give up most of his work during these two years.

He was prominent in politics, being a staunch Democrat. He was a member of the State Board of Registration, and had been president of the State Eclectic Society several times. He is survived by a wife and two children.

Correspondence

Philadelphia, Pa., March 13, 1914

Dr. F. C. Warnshuis, Secretary-Editor,
Michigan State Medical Society.

Dear Doctor:—

On resuming my work to a certain degree after a long illness, I find your letter of last fall, saying that I was elected an honorary member of the State Medical Society at the last meeting. Please express my appreciation of the compliment and believe that I regret the long delay in replying to your notification.

Yours truly,
JOHN B. ROBERTS.

Detroit, Mich., February 24, 1914.

F. C. Warnshuis, M. D., Sec'y. Michigan State Medical Society, Grand Rapids, Mich.

Dear Doctor Warnshuis:—

I have recently been made a member of the committee on Conservation of Vision, of the American Medical Association, to represent the state of Michigan. The idea is to appoint lecturers in different parts of the state, the material for the lectures being furnished by the American Medical Association. I shall take up the details of this work very soon, and will send you an outline of the plan as worked out by the Committee. In the meantime, I wish you might insert a personal in your journal to the effect that I have been given this appointment, in order that my communication may be received with authority.

Yours very truly,

WALTER R. PARKER.

Chicago, Ill., February 20, 1914.

Dr. F. C. Warnshuis, Grand Rapids, Mich.

Dear Dr. Warnshuis:—

The Council on Health and Public Instruction of the American Medical Association, has established a medico-legal bureau for the purpose of collecting, arranging and studying all of the available material, bearing on medico-legal questions of interest to physicians, or relating to public health matters. This bureau is in charge of Mr. John D. Hubbard, a graduate of the Northwestern University School of Law. We desire to secure all available material, bearing on medico-legal subjects, especially all pamphlets, bulletins, monographs, circulars, legislative bills, laws, reports, or special articles on any medico-legal or public health topics. As rapidly as material can be secured and studied, we hope to furnish information to all those interested on any topic coming within range of the bureau. We shall greatly appreciate it, if you will kindly send us, at any time, any such material that may come into your hands. This will be properly classified, catalogued, and preserved for use in answering inquiries on any medico-legal question. We hope to make this bureau of service to the officers and members of the state associations, members of committees on legislation, executive officers of state boards of health and medical examining boards and any others interested. Any assistance or contributions will be appreciated and of great assistance in carrying out the plans of the bureau.

With cordial thanks for your many courtesies in the past and hoping that we may, through this bureau, be of some assistance to you in the future, we remain,

Very truly yours,

FREDERICK R. GREEN, SECRETARY,

Council on Health and Public Instruction.

Muskogee, Okla., March 4, 1914.

Dr. Frederick C. Warnshuis, Editor.
Grand Rapids, Mich.

My Dear Doctor: Believing that a few scattered flowers along our path while we are here is productive of more good than many where we happen to be hereafter, wherever that may be, prompts me to congratulate you on the splendid appearance of your March issue, not only from the standpoint of mechanical excellence, which appears to me to be second to none published, but also for the very high merit contained in its reading matter. May your shadow be with us for a long time that your good work may continue.

Fraternally,

C. A. THOMPSON,

Editor *Journal Oklahoma State Medical Association*.

State News Notes

About 100 members of the middle-west section of the American Rhinological Laryngological and Otological society held a meeting in Detroit on Feb. 23rd. Clinics were held in Harper Hospital; the afternoon was devoted to the reading of papers and discussions and in the evening a dinner was served at the Wayne County Medical Building.

Dr. R. L. Dixon, Lansing, Dr. J. B. Munson, Traverse City, Dr. C. B. Burr, Flint, Dr. A. M. Barrett, Ann Arbor and Dr. John L. Burkhart, Lansing, have been named by Governor Ferris as delegates to the third annual meeting of Alienists and Neurologists to be held in Chicago July 14 to 18.

The Social Welfare Association of Grand Rapids has appointed the following Consulting Medical Staff; Drs. B. R. Corbus, A. M. Campbell, H. Vandenberg, F. C. Warnshuis, R. D. Joldersma, John Hastie, Wm. Northrup, A. V. Wenger, Ferris Smith and C. E. Hooker.

Dr. and Mrs. F. J. Gibson and Dr. and Mrs. G. E. Winter of Jackson have sailed for the Mediterranean en route to Vienna where the doctors will engage in post-graduate work for the next three months.

Dr. G. A. Bulson of Jackson has returned after spending several months at the clinics in Vienna and has opened an office in the Shurley Building, in Detroit. His practice is limited to diseases of the eye, ear, nose and throat.

Dr. Angus McLean of Detroit has accepted the appointment tendered him by Governor Ferris as member of the Detroit Board of Health to succeed

Dr. J. B. Kennedy whose term of office expired on March 1st.

Dr. George L. Streeter, professor of anatomy and director of the anatomical laboratories in Ann Arbor has been tendered the position of professor of embryology at Johns Hopkins university.

Drs. Lewis W. Toles and Earl J. McIntyre of Lansing have been elected president and secretary respectively of the Board of Control of the Ingham County Tuberculosis sanitarium.

Twenty members of the Ingham County Medical Society gave a luncheon recently to Drs. J. A. Post and George E. Ranney, the deans of the medical profession in that county.

Dr. E. Mauer of Kalamazoo has completed his term of service in the Kalamazoo state hospital and departed for a year of advanced study in Europe.

Dr. Thomas H. Oliver of Battle Creek was fined \$250 and sentenced to serve ninety days in jail for the illegal sale of heroin.

Dr. William J. Duff has been elected health officer of Port Huron and has assumed the duties of his new office.

Dr. John T. Bird of Pontiac who has been seriously ill with blood poisoning in a Detroit hospital has returned home and is reported as fully convalescent.

Dr. Harold Hurley, house physician in the city hospital of Jackson has resigned from that position and is now engaged in private practice in Jackson.

Dr. G. E. Gallen of Hancock has returned after a month's absence attending clinics in New York and Boston hospitals.

Dr. Sherman Gregg of St. Joseph has accepted the appointment as assistant to Dr. G. F. Inch of the Kalamazoo state hospital.

Dr. Levi W. Gardner of Harbor Springs has resigned as a member of the U. S. examination board of surgeons.

Dr. R. I. Busard of Muskegon is suing L. C. Walker for \$15,000 for personal injuries sustained as a result of an automobile accident.

Dr. K. C. McDonald of Holly is confined to a

Pontiac hospital by reason of a severe attack of rheumatism.

Dr. Herman Ostrander of Kalamazoo has resigned as president of the Kalamazoo Anti-tuberculosis Society.

The Detroit Chapter of the Nu Sigma Nu fraternity held their annual banquet in the Cadillac Hotel on March 14th.

Dr. Harold Kirkham of Richmond has departed for a trip through Egypt.

Dr. and Mrs. T. J. Haines of Boyne City sailed March 17th for a three months' European pleasure trip.

Dr. Edward P. Wilbur of Kalamazoo has returned from a vacation spent in Florida.

Dr. M. A. Mortenson of Battle Creek has returned from a European trip.

Dr. John Pedden of Petoskey has recently been appointed as county physician.

The following program was carried out at the Hillsdale County Good Health Week. Movements similar to this one might well be started throughout the entire state:

PROGRAM.

Sunday Evening, March 15, at 7:30, M. E. Church
Rev. C. S. Wheeler, Chairman

Music—College Men's Glee Club.

"Crime Against the Boy" (for men and boys only)—Dr. A. S. Warthin, Prof. Pathology, U. of M.
Music.

Presbyterian Church

Mrs. J. W. Mauck Presiding

Music—College Girls' Glee Club.

"Sex Hygiene" (for women and girls only)—Dr. Elsie S. Pratt, Physician to Students, U. of M.

Monday Afternoon

Hillsdale Woman's Club, Mrs. F. W. Elliott, Pres.

Music—College Men's Quartette.

"Public Health Nursing"—Miss Jane M. Pindell, Supt. Training School for Nursing, U. of M.

Vocal Solo—Mrs. Waldron Stewart.

Subject Selected—Dr. A. S. Warthin, U. of M.

Monday Evening, at 7:30

Mayor L. A. Goodrich

Music—High School Girls' Chorus.

Vocal Solo—Miss Flo Gosma, College.

"Sanitary Conditions in the Philippines, China and Japan"—Dr. John Burkhart, Secretary State Board of Health.
Chorus.

Tuesday Afternoon, 1:00

County Ministers' Association in M. E. Parlors.

"The Moral Obligation to be Well"—Dr. V. C. Vaughan,
Pres. American Medical Association.

Tuesday Afternoon, 2:30

Twentieth Century Club, City Hall

Mrs. Nelson Wolcott

Piano Solo—Mrs. A. T. Davis.

"Mother, Home and Baby"—D. E. McClure, Assistant Secretary State Board of Health.

Vocal Solo—Mrs. Dorothy Ruth.

Tuesday Evening, at 7:30

Dr. W. H. Sawyer

Piano Solo—Miss Marie Steele, Lansing.

Vocal Solo—Mrs. Arthur Shepard, Litchfield.

"The Doctor's Dream"—Dr. Victor C. Vaughan, U. of M.

Piano Solo—Miss Vivian Lyon, College.

"Guarding the City's Health"—Dr. Guy L. Kiefer, Pres. Michigan State Medical Society.

Wednesday Afternoon, 2:30

W. C. T. U., Mrs. H. H. Rood, President

Vocal Solo—Mrs. Dorothy Ruth.

Devotionals—

"Health and Heredity"—Dr. A. M. Barrett, Director Psychopathic Hospital, Ann Arbor.

Wednesday Evening, at 7:30

Judge F. H. Stone

Music—High School Orchestra.

"Danger of Light Cases of Communicable Diseases"—Dr. A. W. Scidmore, President State Board for Nurses.

The Scotch Quartette—Mrs. Dorothy Ruth, Mrs. Waldron Stewart, Mr. Waldron Stewart, Mr. A. T. Prideaux.

"The Tuberculosis in Childhood"—Dr. Herbert M. Rich, President Tuberculosis Association, Detroit.

"Public Health a Real Business"—Dr. R. L. Dixon.

Quartette—

Thursday Afternoon, 2:30

The Thursday Club, Mrs. B. H. Bump, President

Music—

"Sanitary Conditions in Michigan Cities and Villages"—Dr. Henry F. Vaughan, Sanitary Engineer of Detroit.

Discussion—Prof. E. D. Rich, State Sanitary Engineer.

"Recent Advance in Public Health Work"—Dr. Don M. Griswold, Bacteriologist, Detroit Board of Health.

Thursday Evening, 7:30

Secretary Forrest P. Knapp, County Y. M. C. A.

Violin Trio—Mrs. Woodhams, Miss Griffith, Miss Helen Goodrich; accompanist, Miss Elsie Eggleston.

"How to Improve the City Milk Supply"—Dr. M. L. Holm, Bacteriologist State Board of Health.

Music—

"Municipal Sanitation"—Prof. E. D. Rich.

"The Fight for Pure Food"—James W. Helme, State Dairy and Food Commissioner.

Friday Afternoon, 2:30

Clover Club, Mrs. Martha Barrows, President

Music—Mr. Hall Crammer, accompanied by Miss Vena Miner.

"What the Schools Can do to Help Build Up a Science of Health"—L. Estelle Appleton, Grand Rapids.

"Disease Prevention"—Dr. Jeanne C. Solis.

Friday Evening, 7:30

Music—Reading Girls' Band

"Sanitary Problems of Small Cities"—Mrs. Caroline Bartlett Crane.

Vocal Solo—Miss Flo Gosma, College.

"Public Health"—Gov. Woodbridge N. Ferris.

Vocal Solo—Prof. E. E. Woodhams, College.

"Fakes and Frands"—Prof. T. L. Shannon, State Analyst.

A course of special instruction for physicians engaged in psychiatric work will be given at the Psychopathic Hospital at the University of Michigan.

The instruction will be systematically arranged and will extend over a period of four weeks, beginning March 30, and closing April 25, 1914.

The instruction will be given in Clinical Lectures and Conferences, Laboratory Studies and Demonstrations and will be conducted as follows:

1. Clinical Psychiatry—Clinical Lectures Conferences and Ward Visits. 40 hours. Professor Barrett.

2. Clinical Examination Methods—Didactic Lectures and Laboratory Demonstrations. 9 hours. Dr. Haskell.

3. Serological Diagnosis and Treatment. 4 hours. Dr. Haskell and Dr. Ide.

4. Neurological Clinics. 6 hours. Professor Camp.

5. Treatment of Syphilis of the Central Nervous System. 2 hours. Professor Wile.

6. Psychoanalysis and the Psychoneuroses—Clinical Lectures and Conferences. 11 hours. Dr. Reye.

7. Development of the Central Nervous System—Laboratory Lectures and Demonstrations. 4 hours. Professor Huber.

8. Anatomy of the Central Nervous System—Laboratory Lectures and Demonstrations. 20 hours. Professor Barrett.

9. Histopathology of Psychiatric Disorders—Laboratory Lectures and Demonstration. 14 hours. Professor Barrett.

For this course of instruction a fee of \$25.00 will be charged.

Applications should be made at an early date as the number admitted to the course will be limited to fifteen.

Applications and requests for information should be made to the Director of the Psychopathic Hospital.

DR. ALBERT M. BARRETT,
Ann Arbor, Michigan.

County Society News

BERRIEN COUNTY

The February meeting of the Berrien County Medical Society was held in Benton Harbor Feb. 12, seventeen members being present. Twenty-three applications for membership were received and referred to the Board of Censors.

The society unanimously adopted the following resolution: "Since indiscriminate advertising by the Medical Profession is contrary to medical ethics, disgusting to reputable physicians and suggestive of quackery, the secretary of this society is instructed to request the publishers of the various newspapers throughout the county not to give the attending physician's name when giving accounts of sickness, operations, injuries, etc."

After the business session the following program was given:

"Etiology and Pathology of Pneumonia." Dr. E. J. Witt, St. Joseph.

"Treatment of Pneumonia." C. A. Mitchell, Benton Harbor.

A general discussion followed in which nearly all present took part.

The March meeting of the Berrien County Medical Society was held at the Hotel Whitcomb, St. Joseph, March 12th, sixteen members being present. Nineteen physicians were elected to membership in the society.

A very excellent and practical paper was read by Dr. C. N. Sowers of Benton Harbor on "The Business Side of the Practice of Medicine." This aroused a general discussion which occupied the entire time set aside for the meeting, and it was unanimously agreed that the paper be sent to the editor of *The Journal of the Michigan Medical Society* for publication.

SHERMAN GREGG, SECRETARY.

BRANCH COUNTY

The annual meeting of the Branch County Medical Society was held at Coldwater January 30th, 1914. Before the business meeting a banquet was served, fifteen physicians from the county attending.

The following officers were elected for the ensuing year.

President—F. S. Legg, Coldwater.

Vice-Pres.—P. H. Gunsallus, Bronson.

Sec'y-Treas.—A. G. Holbrook, Coldwater.

Mem. Med. Leg. Com.—W. A. Baldwin, Coldwater.

Delegate—E. E. Hancock, Gerard.

Alternate—D. H. Wood, Coldwater.

A. G. HOLBROOK, SECRETARY.

CALHOUN COUNTY

The beginning of the end of quarterly meetings of the Calhoun County Medical Society occurred at their first quarterly meeting for 1914, at Battle Creek, Tuesday evening, March 3rd, when an amendment to the by-laws was presented providing for more frequent meetings. The publication of a bulletin was also mentioned, and an early appearance is anticipated. Three applicants for membership were received, and three applicants were elected to membership.

Evening meetings are proving a success, in Calhoun County and help to contribute to the interest, by making it more convenient for the members to attend.

At this meeting Dr. Alpheus T. Hafford of Albion reported a case of Myasthenis Gravis, and gave a good paper on this subject.

Our genial Secretary of the State Society was present by invitation, and aside from his usual boost-

ing of the state organization, he gave a most interesting paper, taking as his subject, Indications for Decompression.

Good fellowship prevailed in every way, and Calhoun County, Branch No. 1 proposes to be number one in every way possible from this date.

S. H. KINGSLEY, SECRETARY.

DETROIT OTO-LARYNGOLOGICAL SOCIETY

Meeting of the Detroit Oto-Laryngological Society at the Detroit College of Medicine and Surgery, January 20, 1914. Dr. J. Vernon White in the Chair.

Dr. Joseph H. Hathaway, Professor of Anatomy in the Detroit College of Medicine and Surgery, gave a lecture and demonstration of the anatomy of the nose, throat, ear, larynx and oesophagus, with many beautiful specimens.

Dr. Harold Wilson presented a patient with Vincent's agina, also a slide showing organism.

Meeting of February 17th, 1914. Dr. J. Vernon White, in the Chair.

Dr. Hugh Harrison, (as guest), read a paper entitled: A Method for Control of Inaccessible Hemorrhage. The Hypodermic Use of Alum ($K_2 Al_2 (SO_4)_3$).

When we refer to our text books and find page after page telling us how to control hemorrhages and then find ourselves at the bedside of a patient with all our knowledge of *Materia Medica* exhausted it is then, and only then, that we welcome any information, regardless of the source.

In September, 1913, I was called to attend a young woman 26 years of age, whose previous health had been good, but who was now afflicted with typhoid fever. Every thing went well for sixteen days. She was then taken with severe hemorrhages from the bowels, and among the many things done to arrest these hemorrhages I might mention the following: For two days large repeated doses of adrenalin morphine, tanic acid, bismuth, ergot and pituitary extract were all given, Ice bags were applied to the abdomen. The hips were elevated. In fact, I thought every available means had been used to control these hemorrhages. I can assure you that it caused me no small amount of worry to stand by and see every remedy fail. The temperature was subnormal. The pulse could not be counted at the radial artery. At the carotid it could be counted with difficulty, and averaged 150 to 160 per minute. The eyes were sunken. The abdomen was very tympanitic. A dark green fluid was almost constantly ejected from the stomach. In fact there was everything to suggest approaching death. I urged that consultation be called in order that I might have someone to share the responsibility of her death. One of our best surgeons of the city was called, and after a careful examination of the patient and review of the treatment, declared the case to be hopeless and stated that he could not offer any suggestion for further treatment which had not already been tried. At this time I suggested the use of alum hypodermatically, but my consultant would not agree to the use of it, stating that he had never heard of it being used in this manner, and strongly advised me not to try it. I consented not to do so providing that she had no more hemorrhages, but at the same time vowing to myself that I would if there was any more bleeding. In less than one hour later the nurse called me and informed me that the patient was bleeding as much as ever. Having previously discussed the mode of administration with the nurse I requested her to prepare and give it immediately. It was given in the form of a saturated

solution made by dissolving powdered alum in hot water and was injected subcutaneously. I also requested her to note carefully every change which might occur. The pulse rate just previous to administering the alum was 150 per minute and of a poor quality. In fifteen minutes after the administration of the drug the pulse rate was reduced to 130 and the quality was very much improved. In thirty minutes the vomiting had ceased, the patient had rallied considerably and declared herself very much improved. Two hours after there was a discharge of dark colored blood. The sight of this caused the family much alarm. The nurse, feeling that we could not afford to take any chances, promptly administered another dose of the alum. This also caused a marked improvement in the general condition of the patient. The pulse was reduced to 120 per minute. I saw her about ten hours later and was pleased to find that every particle of the tympanites had disappeared. Gas was freely expelled from the rectum. Fluids were then easily retained by the stomach. In fact, I will state that I do not think I ever saw a greater improvement in a patient in so short a time. Owing to the unavoidable absence of the nurse at this time a third dose was given. This reduced the pulse to 110 where it remained for several days.

The one thing which impressed me greatly was the fact that following the administration of this drug no untoward symptoms of any kind appeared, except a localized inflammation which appeared later on, at the point of administration. There was no sloughing, although considerable soreness remained for about three days. This soreness prompted me to seek the intravenous route when treating other cases. There was no feeling of fear or accelerated heart action as is so frequently noted after the administration of adrenalin.

Case Number 2. About two weeks later I was called to see a young man who had been spitting blood quite freely for the past twenty-four hours. I administered a similar dose to this patient, using the intravenous route. In six minutes the pulse rate was reduced from 101 to 84 per minute. In less than fifteen minutes the patient put his hand to his collar and remarked that he could no longer hear that gurgling within his wind pipe and the peculiar feeling in his throat had disappeared. There was no further treatment given in this case for twenty-four hours. At this time I was again called and found that the patient had been out of bed and was working about the house. He was again spitting blood. The same treatment was repeated, following which there was no further sign of a hemorrhage.

Case Number 3.—This was another case of typhoid fever which had been given all of the ordinary remedies to control the hemorrhages without avail. I advised the administration of alum hypodermatically and am pleased to state that one dose promptly controlled the hemorrhage. There was no occasion in this case to give a second dose.

A man 54 years of age, with pulmonary tuberculosis, a liver somewhat enlarged and with all of the evidences of a gastric ulcer. When called, I found him bleeding copiously from the lungs. One dose given intravenously promptly controlled the hemorrhage. Feeling that this was a case in which I could do no harm and that there would be little lost, regardless of the outcome, I informed him that it would be necessary for him to come to my office and receive daily treatment for one month or perhaps longer. During this time I administered a ten grain dose of alum intravenously each day. At the end of the first week he informed me that the sputum was very much lessened and that his breathing was much easier. The pulse rate had, as in the other cases, been much improved.

It is my opinion that these results are brought about by the fact that alum stimulates the circulatory fibres, contracts the capillaries, restores the normal tonicity of the muscles and aids materially in the coagulation of the fibrin. There are a great many other conditions in which this drug could be used hypodermatically but inasmuch as they do not come under this heading I will not mention them here.

Given intravenously there is no pain following the administration of this drug, but if for any reason it should be found impractical or impossible to use the intravenous route I would not hesitate to give it subcutaneously as in any ordinary

hyperdemic injection. I would suggest, however, if given subcutaneously that a much weaker solution be used.

Dr. Emil Amberg presented the following case reports:

1. Presentation of a patient of Dr. Ballin with a bullet (X-ray pictures) in the petrous portion of the temporal bone. The bullet had entered on the left side through the soft palate. The left eyeball protruding, hardness of hearing but no total deafness present. The labyrinth excitable, the fundus of the eye changed, etc.

2. Report of a case with presence of bacilli of the diphtheria group in the discharge from the ear and positive culture from apparently healthy tonsil. Recovery.

3. A case of emphysema of skin in a lady 27 years old caused by other party, by spraying throat after loosening tissue in tonsil removal. Duration until total disappearance about two weeks. Incidentally patient had diphtheria. Recovery.

4. A case of a baby seven months old suffering from an acute otitis media with staphylococcus aureus and Friedlaender bacillus. Three incisions in the drum on each side, whenever the temperature rose high (106° , 105.2° , 103.2°). Recovery. Discussed by N. Cooley (as guest).

5. Ear complication in possibly morbus maculosus Werlhofii. Ear affection not typical. Recovery. Discussed by Dr. R. E. Loucks, as guest.

6. A case of so-called oto-sclerosis with presence of the Schwartze symptom, but otherwise not entirely typical. May be just beginning.

Dr. Mercer presented a cast of a nose which he had operated upon for fracture.

Dr. Th. B. Cooley (as guest) spoke of an eight months old child in which he diagnosed laryngospasmus of tetany. Acute rickets present, marked cream's tabes, general nervous hyper-excitability, Choostek's and Trousseau's signs. After chloral hydrate medication gr. i. t. i. d. the symptoms disappeared, besides aurthatic treatment including diet, hydrotherapy, cod-liver oil and phosphorus.

EMIL AMBERG, SECRETARY.

GENESEE COUNTY

On February 10, 1914 a meeting of the Genesee County Medical Society was held at the Masonic Temple.

Drs. Allen, Thomas, and Chandler of Flint were elected to membership in the County Society.

Following the business meetings the following program was carried out:

A paper entitled "The School Nurse and Her work" was read by Miss N. K. Keyes, of Flint.

A paper entitled "How Flint is supplied with Pure Water" was read by Mr. Roy Buzzell, who is the chemist at the new filtration plant in Flint.

Dr. Noah Bates gave a short talk on "Some Reminiscences of Thirty-two Years as Health Officer in Flint."

"Flint's Milk Supply" was responded to by Mr. Friar, the city milk inspector. ..

Dr. Don Knapp gave a talk on "The Relation of the Physician to the Board of Health."

On March 10, 1914, the Society held a clinic at the Home for the Feeble-Minded at Lapeer, Mich. Twenty-two Flint physicians attended the clinic. Those who were present voiced the opinion that it was the most interesting clinic that the Genesee County Society had ever held. We wish to thank Dr. Haynes for the courteous treatment that we received while there.

R. D. SCOTT, SECRETARY.

GRACE HOSPITAL, DETROIT.

The Board of Trustees of The Grace Hospital at their regular meeting, held Thursday afternoon, February 19, made numerous new appointments to the Attending Medical Staff of the Hospital. The surgical division was entirely reconstructed. Dr. Oscar Le Seure was re-elected Chief of the Surgical Department and the department divided into four divisions. . The new appointments to one or other of these divisions were Dr. Herbert W. Hewitt and Dr. E. C. Hoff, Attending; Dr. R. J. Palmer, Associate; Dr. H. K. Shawan and Dr. Chas. Kennedy, Clinical Assistants. The former members of the Surgical Department who complete the department are Dr. Oscar Le Seure and Dr. Stephen H. Knight, Attending; Dr. Fred E. Thompson, Dr. Frank A. Kelly and Dr. George P. Myers, Associates. Dr. J. B. Kennedy was appointed as a member of the Medical Staff as Consulting Surgeon to the Grace Hospital.

A fourth division was added to the Department of Medicine with Dr. Albert McMichael, Attending Physician, and Dr. Harry A. Shafor, Associate Physician.

Dr. H. W. Plaggemeyer, formerly of the John Hopkins Hospital, Baltimore, was made Attending Physician to the Department of Urology, and Dr. Louis J. Goux, Attending Surgeon to the Department of Diseases of Eye, Ear, Nose & Throat.

At this meeting of the Board of Trustees an Attending Staff was elected for the new Convalescent Branch of the Hospital, located at 277 West Grand Boulevard, and known as the Miriam Memorial Branch.

This branch was opened on January 1 and these elections furnish the first attending staff for the convalescent service. Department of Medicine: Drs. Leonard F. C. Wendt, George B. Hoops, and George C. Duggan were made Attending Physicians.

Dr. James E. Davis and Dr. George L. Koessler were elected Attending Physicians in the Department of Obstetrics.

Dr. Dale M. King and Dr. R. L. Clark were elected Attending Physicians in the Department of Nervous Diseases.

The Attending Medical Staff of the Convalescent Branch by their election as such, become regular members of the Medical Board of The Grace Hospital.

Dr. George Kamperman, formerly on the teaching Staff in the Department of Medicine, University of Michigan, was elected as Attending Physician to the Department of Diseases of Women in the Grace Hospital Polyclinic. Dr. H. W. Plaggemeyer was nominated as Attending Physician to the Genito-Urinary Department of The Grace Hospital Polyclinic. With these additions The Grace Hospital Medical and Attending Staffs in all departments number seventy-five of the leading physicians and specialists of Detroit.

These additions and changes have become necessary on account of the phenomenal growth of the Hospital, from an average of seventy-five patients per day in 1904 to a capacity of 282 beds at the present time in its various departments.

For several years past the Board of Trustees have keenly recognized the necessity for increasing the bed capacity of the Hospital in its various departments as rapidly as its available funds would permit. The Board of Trustees is comprised of an active group of business men who have been in close touch with the industrial development of the city and were able to foresee a rapid increase in the demand for hospital accommodations. The Workmen's Industrial Compensation Act, which went into effect Sept. 1, 1912, also forced the Hospital to increase its number of Ward beds and greatly enlarge its accommodations for injured workmen. This enlargement has been under way during the past eighteen months so that the hospital in its Main buildings and Branches has a capacity for the care of 200 ward patients of both sexes, in addition to its private room service.

At this meeting the Board of Trustees a special effort was made towards raising the standard of Medical Ethics. The Board adopted a resolution requiring that present and all subsequent members of the various Medical Staffs of the Hospital to take a decided stand against violators of medical ethics, and especially against surgeons and physicians who drum up business by splitting fees. The entire Attending Medical Staff at a combined meeting, held Tuesday evening, Feb. 17, adopted a resolutions requesting the Board of Trustees to make it obligatory for all members of the Attending Medical Staff to sign a "Declaration" opposing the practice of fee splitting and the soliciting of surgical work as contrary to the general principle of medical and surgical ethics and the welfare of the public. This was unanimously adopted by the Medical Staff at this meeting and confirmed by the Board of Trustees, and thereby was made one of the official rules of the Hospital.

The Medical Staff is headed by the following men, who comprise the Executive Committee and

who are responsible largely for the numerous additions to the Staff that have been made in the past few months: Drs. Oscar Le Seure, Stephen H. Knight, Harold Wilson, Geo. G. Caron, Harlow B. Drake, Rollin H. Stevens, W. L. Babcock.

The Board of Trustees of the Hospital are as follows: Messrs. Truman H. Newberry, H. Kirke White, Philip H. McMillan, George M. Black, Henry E. Bodman, Hamilton Carhartt, M. T. Conklin, Chas. A. Dean, John S. Newberry, Wm. T. Barbour, Dexter M. Ferry, Jr., Gaylord W. Gillis, Henry B. Joy, James S. Holden, James H. Flinn, Henry M. Leland, and Hon. Don M. Dickinson.

ADVANCE SHEETS OF THE ANNUAL REPORT OF THE GRACE HOSPITAL FOR 1913.

Total number of patients treated in Hospital during 1913	5647
Total number of days' treatment furnished patients in Hospital	75,804
Daily average number of patients for the year 1913	202
Average length of treatment of each patient, days	13½
Cost of maintenance per patient per day	\$ 2.56
An increase of 21 cents per patient per day over last year.	
Total hospital expenses for 1913 were	\$194,204.90
Total Hospital earnings for 1913 were	176,143.69
This deficit was made up in part by the income from the general endowment funds.	

Of the 5647 patients treated, 3567 were admitted to wards, 1431 to private rooms and 648 to semi-private accommodations. On account of the rapid industrial development of the city the demand for moderate priced ward accommodations has increased to a greater extent than the hospitals can meet with their present endowments.

CHARITY WORK OF THE HOSPITAL.

Number of days' treatment furnished patients in the hospital free of charge	14,934
Number of visits to medical, surgical and dental departments of the Polyclinic free of charge	10,387
as compared with 5979 during 1912.	
This is an increase of 4408 visits or 73.7 per cent.	
The demands on the Hospital for free treatment and care of indigents increased in all departments during 1913.	
From the free dispensary 419 patients were transferred to the Hospital for in-treatment for periods ranging from one day to six months. Of this number 378 were treated in the Surgical, Eye, Ear, Nose and Throat, or Gynecological Departments and relieved by surgical operations.	

SOCIAL SERVICE DEPARTMENT.

The work started March 21st, 1913. The following statistics cover the work carried out from its inception, March 21st, 1913 to Dec. 31st., 1913.

652 visits were made to the homes of patients who attended the Clinic, also city, country and charity patients discharged from the Hospital.

12 cases were reported to the Jewish Charities.
31 cases were reported to the Associated Charities.
21 cases were reported to the Baby Milk Fund Society.
13 cases were reported to the Visiting Nurse Association.
5 cases were reported to the Tuberculosis Society.
1 case was reported to the Juvenile Court.
6 cases were reported to the St. Vincent De Paul Society.
10 cases were reported to the Board of Health.
2 patients without homes were sent to Eloise.
3 patients were reported to the Society for the Prevention of Cruelty to Children.
3 children were placed with the Michigan Children's Home Finding Society to be cared for while the mother found work in the Hospital, the father having deserted the family.

Work was found for 15.

33 women and children were sent for summer outings through the kindness of the Associated Charities, the Michigan Fresh Air Society, and the Free Press Camp.

59 patients were refused free clinic care and sent to private physicians, it having been found that their circumstances enabled them to pay for medical care.

The work of this department demonstrates the necessity for active social work among families who are under stress during illness or indigent and among convalescent ward patients who are discharged from the Hospital. The Hospital Social Service Worker has spent the greater part of her time during the past year between the Hospital and homes or rooms of dispensary and ex-in-patients.

BEQUESTS AND DONATIONS RECEIVED DURING 1913.

Mrs. Helen H. Newberry..	}	.....\$20,000.00
Mr. Truman H. Newberry..		
Mrs. H. B. Joy.....		
Mr. John S. Newberry.....		
For the endowment of a private room for the use of the graduates of The Grace Hospital Training School for Nurses.		
Mrs. Helen H. Newberry, bequest of \$5,000.00, the income of which is to be devoted to the maintenance of the Helen Newberry Nurses' Home.		
Mrs. E. W. McGookin, contribution for the purchase of sterilizers for the lying-in department.		
Board of Lady Managers, The Grace Hospital		\$225.00
In partial payment of the salary of the Hospital Social Service Director.		
Mr. Henry M. Leland, contribution to Social Service fund.		
Mr. W. T. Barbour, contribution to Social Service fund.		

MIRIAM MEMORIAL BRANCH.

This property, located at 261 to 263 West Grand Boulevard, was opened as a convalescent and maternity branch on January 1st, after being completely remodeled to accommodate these patients. It was donated by Mr. and Mrs. H. M. and W. C. Leland, and has been designed and equipped to care for 40 patients. It is a veritable miniature hospital and is complete in all its appointments. Plans have been made to manage the hospital directly from the main group with a local supervisor in charge.

EMPLOYES' BUILDING.

On September 1st the Trustees of The Grace Hospital appropriated \$45,000 to build and equip a home or apartment house for domestic employes. Designs and specifications drawn by Albert Kahn were already on hand, contracts were let and the building constructed in an exceedingly short time. It is now nearing completion and will be ready for occupancy in March. It is located on Alexandria Ave., facing Brush Boulevard.

DECLARATION.

I hereby promise upon my honor as a gentleman that I will not, so long as I am a Member of The Grace Hospital Medical Staff, practice division of fees in any form; neither will I submit bills for others referring patients to me; nor will I permit them to submit bills for me; nor joint fees with physicians or surgeons referring patients to me for operation or consultation; neither will I in any way, directly or indirectly, compensate any one referring patients to me; nor will I utilize any man as an assistant as a subterfuge for this purpose. I furthermore agree to studiously avoid visiting, treating or advising the patient of another physician without his knowledge or consent; and furthermore agree to maintain in my relations with other physicians the highest recognized standard of Medical Ethics, whether in consultation or in hospital work.

W. L. BABCOCK, M.D.

GRATIOT COUNTY

The first quarterly meeting of the Gratiot County Medical Society was held at the court house in Ithaca, on Thursday February 26th, 1914. The program was carried out in full.

The discussion of Doctors Barstow's, Thornton's, and Gardner's papers precipitated a long discussion on the question of reimbursing the doctors for the care of the poor, by the Board of Supervisors. Dr. McLean was called on to explain what is known as the Tuscola County plan. Dr. Barstow advocated what is known as the Hillsdale County plan. On motion of Dr. Barstow, President Monfort was requested to act as Chairman of a committee of Ithaca physicians, and with as many others as he thought best confer with the Board of Supervisors regarding the care of the poor.

Dr. Pankhurst then read his paper on the use of Bacterial Vaccines, which was enjoyed by all, but because of the lateness of the hour discussion was limited and on motion of Dr. Gardner. Dr. Pankhurst was given a vote of thanks for his excellent paper. Dr. Weller then read his paper on Puerperal Eclampsia as encountered by the country practitioner. Many were ready to discuss this excellent paper, but the time being limited it was moved that the Doctor's paper be sent to the State Journal for publication.

The meeting then adjourned to the dining room in the basement of the courthouse where an excellent supper was enjoyed by all at the expense of the Ithaca physicians. All were agreed that this was the best meeting of the Society that has been held at Ithaca in a long time.

E. M. HIGHFIELD, M.D., SECRETARY.

KALAMAZOO ACADEMY

Tuesday, February 24, 1914 at 1:30 p. m.

Payment of Dues—Treasurer, Dr. Frances Elizabeth Barrett, 1130 S. West Street.

1. Business Meeting.
2. Case Reports.
3. (a) Mental Deficiency.

(b) Minnesota Colony System for the Care of Epileptics. Dr. A. C. Rogers, Faribault, Minn.

Discussion by—Drs. R. L. Dixon, Lansing; A. I. Noble, W. A. Stone.

4. Roentgen Examination of the Head. Dr. P. M. Hickey, Detroit, Mich.

Discussion by—Drs. A. W. Crane, F. E. Grant, E. J. Bernstein.

We are very glad to welcome our neighbors into our midst. Both for the good of organized medicine in general, and ourselves in particular, we should boost this society. For it is written: "No man can live unto himself alone." This is more applicable to medicine than to almost any other human activity. We regret that more medical men do not profit by the visits to our society of essayists

who put forth their best efforts and sacrifice greatly that we may feel that we are getting something.

Dr. Case gave an exhaustive lantern slide demonstration of Ileal Stasis; only thirty members were present to hear this comprehensive treatise of this subject. This is a busy time of the year, but these programs you cannot afford to miss, though you may lose some calls in and out of the office. Good things are always expensive, and it takes sacrifice to obtain them.

Dr. Wilbur reported two cases of foreign bodies in the eye at the last meeting. X-Ray plates were passed around that demonstrated the position of the foreign bodies quite accurately. He emphasized the indispensable aid of the X-Ray plate in case of injury to the eye from foreign bodies.

Though we believe the mission of the Bulletin to be that of a scientific nature to keep the absent member in constant touch with his society, we will digress somewhat from the usual routine and quote from Dr. Osler and Mr. Benjamin Jowett, for the serious meditation of the young member, and for the revival of the student days that have been crowded out by the issues of life and death, and grave responsibilities of a busy life in medicine.

"The want of energy is the main reason why so few people continue to improve in later years. They have not the will, and do not know the way. They 'never try an experiment' or look up a point of interest for themselves; they make no sacrifices for the sake of knowledge; their minds, like their bodies, at a certain age become fixed. Genius has been defined as 'the power of taking pains'; but hardly any one keeps up his interest in knowledge throughout a whole life. The troubles of a family, the business of making money, the demands of a profession, destroy the elasticity of the mind. The waxen tablet of the memory, which was once capable of receiving 'true thoughts and clear impressions,' becomes hard and crowded; there is no room for the accumulations of a long life (Theat. 194 ff.). The student as years advance rather makes an exchange of knowledge than adds to his stores."—Jowett, "Introductions to Plato."

Tuesday, March 10, 1914 at 1:30 p. m.

Reading of minutes of previous meeting.

1. The Cardiac Arrhythmias.

Demonstration of use of Mackenzie Polygraph. Lantern slides illustrating various cardiac conditions. Dr. Walter J. Wilson, Jr., Detroit, Mich.

Discussion by Dr. F. C. Penoyer, Dr. R. P. Stark.

2. Principles underlying Tendon, Fascia and Bone Transplantation. Dr. Dean Lewis, Chicago, Ill.

Discussion by Dr. R. C. Stone, Battle Creek.

1. Anesthesia. Dr. Wm. C. Huyser, Kalamazoo. Discussion led by Dr. R. G. Cook.

2. The Orthopedic Treatment of Infantile Paralysis.

Clinic on Infantile Paralysis. Dr. John L. Porter, Chicago, Ill.

Discussion led by Drs. H. O. Statler and F. M. Ilgenfritz.

3. Reports of Cases.

4. Business Session.

Dr. Porter will give a clinic in the Academy rooms on Infantile Paralysis. This should be of supreme interest to every physician. If you now have a case, or have had one that presents some clinical phases of disease, or complication therefrom, will you kindly bring all cases to the Academy where the clinic will be held, or notify Dr. Frederic Shillito, Chairman of the Clinical Committee. The more complete the clinical history the greater the interest.

The Kalamazoo Academy has been fortunate in not having had any delinquents for 1913. Remember if your dues are not paid by April 1, 1914 your name will appear in the *Journal* as a delinquent; this will mar our good record, and you will not be a recipient of the April number of *State Journal*. Team work and "get together" will prevent such irregularities.

C. B. FULKERSON, SECRETARY.

LENAWEE COUNTY

The Lenawee County Medical Society held one of the most interesting and well-attended meetings in its history March 10th in the afternoon, hearing two illustrated lectures at the New Family Theatre, one illustrated by motion pictures of surgical operations. These two lectures were the attraction for an unusually large attendance with doctors from the city and other places in the country in attendance in large numbers. In addition to the members of the medical profession the Bixby Hospital board, nurses, members of the school board and clergy, and a small number of other prominent people of the city were present.

Preston M. Hickey, one of the leading X-Ray specialists of Detroit, lectured on the use of the X-Ray treatment in medicine and surgery. His address, illustrated by a number of stereopticon plates, was unusually interesting. The clearness and definition of the plates, showing the manner and effect of treatments, added greatly to the interest of the talk.

J. H. Jacobson, of Toledo, a leading physician and surgeon of that city, spoke on the use of local anesthesia in surgical operations. A moving picture film, showing several operations as performed by the aid of local anesthesia, was of great interest, and helped the speaker bring out the points of his talk. Dr. Jacobson was accompanied here by Dr. Todd of Toledo, who was a guest of the medical association while here.

MANISTEE COUNTY

The regular monthly meeting of the Manistee County Medical Society was held at Ramsdall Hall, with an unusually large attendance.

At 6 p. m. a very delectable luncheon was served

by our worthy "Chef" Dr. Harry J. Combs. After cigars were passed the meeting was called to order, President E. S. Ellis presiding.

The minutes of the previous meeting were read and approved.

Dr. Louis L. Ramsdall read the paper of the evening, "The Doctor and His Success." The subject was very carefully handled, considering the doctor in his relation to society, and the attitude of society towards the doctor. Also the doctor as a brother practitioner in his own profession, and in his attitude towards his patients; deducting that it's the finer human sensibilities in us that make the highest degree of success, practical ability being equal. And, while these qualities are largely born in us, yet they can be larger cultivated.

The paper was splendidly received, and it was suggested that the secretary forward same to the editor of the *State Journal* for publication.

The meeting then adjourned.

DR. LEE A. LEWIS, SECRETARY.

MARQUETTE—ALGER COUNTY MEDICAL SOCIETY

The February meeting of this society was held in Marquette on the evening of February 16th. As there was no prearranged program the new President, Doctor C. J. Larson, of Negaunee, opened the session with a talk on the "County Medical Society." He said in part: Every County Society seems to have a common life history—an enthusiastic birth, a more or less stunted growth and then renewed vitality and great development. Numbers alone do not count for everything, for some national societies of high efficiency can at some meetings muster only ten or a dozen members. What is needed most of all is an "*esprit de corps*" permeating the whole organization an enthusiasm which grips every member and compels him to perform gladly any duty which the Society may request of him; a receptive state of mind that he may note what the various speakers affirm and decide by his own investigations of the subject whether they have read their theme aright, and the criticism which may follow, even if severe, need not be given in a malignant spirit. Again every Society desires as members every eligible man in the County and we hope to have that duty done before the state solicitor comes around. The conditions as printed on the application blanks are liberal enough in all conscience. It is a mistake for any man to think that he can stand alone in the exigencies of practice. The field is too broad, the knowledge is too deep, and the ability of most minds to retain and apply all they seek to know too limited, and at the bedside one finds that the symptoms are baffling and the judgment fallacious.

No, one man knows it all and each one needs the moral support of the county society, and the county society needs him. One says to me "I don't go to the meetings because I can read all they have

to say in the books." It is very true that you busy men are not engaged in research work and still there is not one of you who is not intensely interested in all the research work as reported in your medical magazines and books. You pride yourselves upon being up to date. Why, gentlemen, there is enough "medical news" in sight at the present moment to keep us all taking medicine for the next twenty-five years. Get on your feet once in a while and tell us what you know, what you expect and what you hope about these things and the society will flourish like a green bay-tree.

SAGINAW COUNTY

The regular monthly meeting of the Saginaw County Medical Society was held at the City Hall Feb. 26th, 1914, with an attendance of about forty.

Pres. McGregor appointed the following as members of the local committee on Red Cross Medical Work of the A.M.A. The President and Secretary of the Society, Dr. H. J. Meyer, Dr. J. W. McMeekin and Dr. B. B. Rowe.

Dr. Geo. E. McKean of Detroit gave an enlightening talk on "Blood Pressure, and What It Means to the Man in General Practice."

Dr. H. J. Meyer gave a splendid and comprehensive paper on "Gastro-Enterostomy."

Several new members were elected and the County Society is now in a flourishing condition. The annual meeting will take place at the meeting of March 19th.

A. R. MCKINNEY, SECRETARY.

SHIAWASSEE COUNTY

The Shiawassee County Medical Society met in Owosso on March 3rd, 1914 in the Y. M. C. A. rooms, with a good attendance.

Pres. J. A. Rowly of Durand called the meeting to order, and introduced Dr. A. O. Hart of St. Louis, who read an interesting paper on "Vaccines and Immunity in Their Relation to Surgery." The paper was a very practical one, giving details of actual experience, and yet was not too technical for the average general practitioner. The recent advances in this line of treatment were outlined and a brief resume of the subject up to date was most interestingly made. Dr. Hart received a vote of thanks for his most excellent paper.

Dr. A. M. Hume made a fine report of the recent meeting in Chicago of the various State Boards of Registration, having represented the State of Michigan at that meeting. He assured the Society that Michigan now stands in the front rank as far as regards medical laws.

At the conclusion of the discussion of the paper and report an oyster supper was served in the dining room, to which all did full justice.

W. E. WARD, SEC'Y-TREAS.

SOUTHWESTERN MICHIGAN TRIOLOGICAL SOCIETY

The fifth regular meeting of the Southwestern Michigan Triological Association was called to order by the President, Dr. E. J. Bernstein, in the Academy of Medicine Rooms, Kalamazoo, Monday, March 2nd, at 8 p. m.

The minutes of the previous meeting were read and approved as read. Dr. Bernstein presented two cases. One of ptosis of the right lid with paralysis of the oculo-motor muscles with the exception of the external rectus. This condition came on suddenly and has continued for about five weeks, showing no apparent improvement. Specific history is denied.

The other case presented was a young lady about twenty-six, a school teacher, who had a discharging ear with no pain for two weeks before consulting the doctor, whom she consulted for the removal of a polypus. The doctor, after the removal of the polypus, developed the bacillus mucosis capsulatus, and the X-ray showed destruction of the mastoid. The radical operation was done next day, at which it was necessary to carefully curette the bony canal for the facial nerve. Also to destroy the lateral semi-circular canal, the necrosis had been so rapid and so extensive. A week later, Thiersch' grafts were applied to the cavity, according to Balance' method. Immediately after the first operation was completed, facial paralysis developed. At the operation for applying the grafts, the facial nerve was inspected and found intact. At the present time, control of the orbicularis muscles and the muscle of expression is returning. Epidermization of the mastoid is complete.

Dr. F. E. Grant read a paper upon the treatment of chronic middle ear catarrh, in which he paid especial attention to the nose and throat conditions responsible and advocated in the treatment the careful correction of all these conditions, together with pneumo—massage of the drum, and the loosening or relaxation of all adhesions found. He advocated also medication of the tympanum by the Eustachian catheter. In the discussion which was participated in by Drs. Haughey, Chapman, Colver, Bernstein and Harrington, the Heath cantharidine treatment and the various instruments for the restoration or re-education of the hearing were discussed, the opinion being that these instruments accomplish but little if any more than our old armamentarium.

Dr. Bernstein presented an illustrated discussion of the submucous resection of the nasal septum. The illustrations (from Freer), and the able presentation of the subject brought out many valuable points. Special stress was laid upon the continuation of the periosteum and perichondrium from one side to the other at the junction points between bone and cartilage in deflected septum and to the over riding of bone and cartilage. A general discussion followed.

Upon vote, the next meeting will be held at Ann

Arbor with a clinic by Dr. R. Bishop Canfield.
Meeting adjourned.
WILFRED HAUGHEY, SECRETARY.

WAYNE COUNTY

Monday, March 2—General Meeting.
Anoci Association. Dr. Geo. W. Crile.
Subscription dinner for Dr. Crile, 6:30 p. m.
sharp.

The man who "Dislocates Most any Joint of His Body At Will" performs before Dr. P. M. Hickey's X-Ray machine.

Last Monday night Dr. Hickey demonstrated the fact that "Dr. Whitman," to whom we all donated liberally for his performance a couple of weeks ago—*does not* dislocate a single joint. He took a series of pictures in the presence of three witnesses—all of which showed that "Dr. Whitman's" joints stayed as the Lord intended they should, and explained that his contortions were muscular.

The following account which is interesting, was published thoroughly a short time ago:

Elias Whitman, who for 20 years has been demonstrating to the medical world a puzzling, India-rubber flexibility of the various joints of his body, has gained the name of "The Man Without a Diaphragm."

Mr. Whitman contorted his chest, evidently experiencing great pain, and dropped the apex beat into the abdomen. One of the professors brought a stethoscope to bear, but said he was unable to verify the position of the organ, after the alleged dislocation, despite the fact that he was directed by Mr. Whitman.

Mr. Whitman waives aside the skepticism, and says he has ample testimony from physicians the world over who have studied him, and say that the heart is actually lowered, although none has been able to ascertain how it is done.

At the age of five years, Whitman was rushed to a hospital by his mother, who pointed out to physicians a dislocation of the shoulders. Examination showed the child to have loose ligaments at every joint. Whitman, now 25 years of age, has been touring the world, exhibiting the "freak of nature" since.

The man made six dislocations of the shoulder, four of the hips, drew the liver and intestines into the chest, made four dislocations of the spine, and allowed the sophomores to reduce the dislocation under the new Fernberg method, which was given its initial experiment at Heidelberg.

Besides skipping about with both hips dislocated, hopping from a table to the floor, and putting them to other tests. Mr. Whitman showed no hesitancy in allowing the students to work over him, trusting them with the reduction of the dislocations and directing their work.

"I am always in danger of death from the dislocation of the heart," he said. "I have been warned again and again to cease the experiment."

During the three seconds that he says he has the heart in the abdomen, the power of breathing is paralyzed, and the danger that the beating of the heart will forever be stilled, is always confronting him. He is a small, vigorous man. He does not wear an overcoat in the coldest weather, the cold, he said acting as a tonic on the ligaments and joints. "Halle University" conferred the honorary degree of "Doctor" upon him.

Program.

Monday, Feb. 23—Surgical Section.

Practical points (of special interest to the general practitioner) in the treatment of diseases of the ear. Dr. J. M. Ingersoll, Cleveland, O.

"Tonsils in Relation to General Infection." Dr. G. E. Shambaugh, Chicago, Ill.

Monday, March 9—Medical Section.

Polio-mylitis. Wesley Taylor.

A study of Diphtheria Carriers and their Treatment. Theo. McGraw, Jr.

Monday, March 16—General Meeting.

Present interpretation of the Laboratory Diagnosis of Syphilis. H. R. Varney.

A Sero-Enzyme test for Syphilis. F. W. Baeslack.
R. L. CLARK, SECRETARY.

Book Reviews

MODERN MEDICINE. ITS THEORY AND PRACTICE. In original Contributions by American and Foreign Authors. Edited by Sir. Wm. Osler, Bart., M.D., F.R.S., Regius Professor of Medicine in Oxford University, England; Honorary Professor of Medicine Johns Hopkins University, Baltimore; formerly Professor of Clinical Medicine in the University of Pennsylvania, Philadelphia, and in McGill University, Montreal; and Thomas McCrae, M.D., Professor of Medicine in the Jefferson Medical College, Philadelphia; Fellow of the Royal College of Physicians, London; formerly Associate Professor of Medicine in Johns Hopkins University, Baltimore. In five octavo volumes of about 1000 pages each, illustrated. Volume II. Diseases caused by Protozoa and Animal Parasites—Diseases Due to Physical, Chemical and Organic Agents—Disease of Metabolism and of the Respiratory System. Just ready. Price per volume, cloth, \$5.00 net; half morocco \$7.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

The prompt appearance of the second volume of the new Osler and McCrae's Modern Medicine gives evidence of excellent organization and efficient co-operation between editors and contributors. This volume has the same handsome appearance as its predecessor, and the same ex-

ceptional beauty. The subjects treated include Protozoan and Metazoan Infections; Diseases caused by Physical, Chemical and Organic Agents; Diseases of Metabolism and Diseases of the Respiratory Tract.

The eminence of the contributors and the authoritative character of their contributions make it difficult to select any for special comment. Two subjects, however, which have undergone the most revolutionary changes since the appearance of the original work, are represented by Sir William Osler's extensive article on Syphilis, in which treatment are given at considerable length, and an entirely new chapter of high authority on Pellagra. Other sections discuss subjects which have been along the recent line of advance of medical science, and make the volume of exceptional interest and value.

The reviewer needs to add but little more, because he is aware that the profession will be eager to possess this book, and thus acquaint themselves with the contents of so authoritative a work.

PATHFINDERS OF PHYSIOLOGY. By J. H. Dempster, A.B., M.D., Detroit. Published by the Detroit Medical Journal Company. Cloth, 66 pp. Illustrated.

The author of this work is well known to the profession of the state by reason of his editorship of the *Detroit Medical Journal*. The contents of this little volume is a collection of the copy that has appeared from time to time in his journal.

In an interesting and instructive way the relations and influence of certain men upon the discovery of now recognized physiological functions are described. One cannot help but profit by the reading of this book, and we congratulate the author at the same time expressing the wish that the reception accorded to this volume may inspire him to further and broader work in this field.

INFECTIONS OF THE HAND. A GUIDE TO THE SURGICAL TREATMENT OF ACUTE AND CHRONIC SUPPURATIVE PROCESSES IN THE FINGERS, HAND AND FOREARM. By Allen B. Kanaval, M.D., Assistant Professor of Surgery, Northwestern University Medical School, Chicago. New (2nd) edition, thoroughly revised. Octavo 463 pages, with 147 illustrations. Cloth \$3.75 net. Lea & Febiger, Philadelphia and New York, 1914.

This is undoubtedly one of the most valuable and practical books which the physician could place in his library. The frequency of injuries to the hand, the disastrous results which may occur, and the importance of proper treatment, are well known. Dr. Kanaval has made a special study of this field, and has obtained remarkable results; and his book is the only one in existence which covers its subject fully and ex-

clusively. It is the result of several years' work, comprising experimental and anatomical investigations carried on in conjunction with careful clinical observation of an extensive number of cases. By the use of the measures described in this volume it has been possible, even in neglected cases, to insure a restoration to complete function in 95 per cent of the abscesses of the facial spaces; while in tendon-sheath infections the morbidity has been reduced fully one-half, and the usefulness of many a hand that is now lost might be preserved if every practitioner and surgeon were equipped with the information set forth by Dr. Kanaval in regard to the diagnosis of this frequent and too often under-rated lesion. The practical character of this work may be shown by the following quotation from the preface: "The chapters are so grouped that the busy practitioner can find the part dealing with his particular case quickly. Given a case in which the practitioner is in doubt, he should read the chapter upon 'Diagnosis and Treatment in General.' This will indicate the group into which his case falls, and will also direct him to the proper sections of the book where cases of that nature are treated in detail." The illustrations are large and remarkably clear and instructive.

The reviewer wishes that he could draw to the personal attention of every reader the value of this volume. The grasping and applying of these principles by the practitioner will enable him to obtain results equally as good as those of the author. The book cannot be recommended too highly. It should be owned by every member of the profession.

DIAGNOSIS IN THE OFFICE AND AT THE BEDSIDE. The Use of Symptoms and Physical Signs in the Diagnosis of Disease. By Hobart Amory Hare, M.D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College of Philadelphia. New (7th) edition, thoroughly revised and rewritten. Octavo, 547 pages, with 164 engravings and 10 full-page plates. Cloth \$4.00 net. Lea & Febiger, Philadelphia and New York, 1914.

The great practical value of this work and its appreciation by the medical profession is shown in the demand for a seventh edition. In this new issue the size of the volume has been reduced by the omission of laboratory diagnosis, and the price has been correspondingly brought down to four dollars. This places it on the same basis of cost as Hare's *Practical Therapeutics*, to which it is an admirable companion. With these two books before him, the practitioner is well equipped for the most puzzling case. He could not have more authoritative information in a form more definite or more easily accessible.

The book is exactly what its title claims—an Office and Bedside Diagnosis. It is primarily a regional study of symptoms; and it points out clearly just what the physician should look for

from the moment he first sees his patient until a positive diagnosis is reached. It takes up each problem as the physician must take it up in the hospital ward, in the clinic or in actual practice, and by valuable tabulations points out, wherever possible, the differentiation between conditions which are similar. Thus it virtually eliminates the possibility of error. It is a striking example of Dr. Hare's wonderful ability to pick out what is essential, and present it in such a way that it will be of the utmost service. The excellence of the work is further enhanced by the series of admirable illustrations, and by the full index covering fifty pages, which makes any point in the book instantly available.

Every member of the profession will find this work a most valuable aid, and to be without it will tend to eliminate from his resources that which he cannot well afford to be without.

THE CLINICS OF JOHN B. MURPHY, M.D. at Mercy Hospital, Chicago. Volume III, Number 1. Octavo of 190 pages, 91 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Published Bi-Monthly. Price per year: Paper, \$8.00, cloth, \$12.00.

Number 1 of Volume III of the Surgical Clinics of John B. Murphy is before us—admittedly welcome. The first that attracts our attention is the editorial note that: "Beginning with the April number there will appear in each issue a detailed talk by Dr. Murphy on some special topic connected with the general subject of Surgical Diagnosis." This is bound to add to the value of the clinics, for the subscriber in a few years will have in his possession a complete series of articles on important factors requisite to reach an accurate diagnosis and which have been proven absolutely reliable in Dr. Murphy's large clinical experience.

This number is of added value on account of its containing valuable discussions by the following noted visitors who have attended the clinic from time to time: Sir Rukman J. Godlee of England; Dr. G. E. Brewer of N. Y.; Mr. Herbert Patterson of London; Dr. G. W. Crile of Cleveland.

All the cases reported contain much that is instructive and profitable. The clinics deserve a large subscription. You will profit exceedingly from them.

PROGRESSIVE MEDICINE. Volume XVI, Number I.

A quarterly digest of advances, discoveries and improvements in the medical and surgical sciences. Edited by Hobart A. Hare, M.D. Price \$6.00 per annum. Lea & Febiger, Philadelphia.

Surgery of the Head and Neck by Chas. H. Frazier; Surgery of the Throat by John Ruhrah; Diseases of Children by Floyd M. Crandall; Phinology and Laryngology by George B. Wood; Otology by Arthur B. Duell, comprises the contents of Volume XVI, Number I of this publication and thereby

places before the profession the recent advances and discoveries in these fields of medicine and surgery during the past three months.

The progressive medical man will at a glance perceive the immense value of a publication sent out after having been subjected to the editorial scrutiny of such recognized authorities as have edited this number. To remain abreast and progressive implies that you are receiving this work which merits your patronage and material support.

PRACTICAL SANITATION. A handbook for health officers and practitioners of medicine by Fletcher Gardner, M.D. and J. P. Simonds, B.A., M.D. Illustrated, cloth, 402 pages. Price \$4.00. C. V. Mosby Co., St. Louis, Mo.

Here is an excellent guide for health officers, and we believe the only book of its kind. It is a plain exposition of the duties of a health officer and advances safe measures whereby he may meet any emergency that may arise. It goes into the subject of quarantine very carefully and groups the different diseases requiring quarantine. The examination of school children is covered in a practical manner as are also various plans for the prevention of diseases. No health officer should be without this work and the doctor will find it of value and assistance.

ANATOMY AND PHYSIOLOGY. A Text Book for Nurses. By John Forsyth Little, M.D., Assistant Demonstrator of Anatomy, Jefferson Medical College, Philadelphia. 12 mo., 483 pages, with 149 engravings and 4 plates. Cloth, \$1.75 net. The Nurses' Text-Book Series. Lea & Febiger, publishers, Philadelphia and New York, 1914.

This concise work presents all the essential points of anatomy and physiology, which the nurse must have at hand for the proper comprehension of her professional duties. The author's style is clear and untechnical, and no theories have been included except those which have been definitely accepted by teachers of these subjects. Emphasis has been placed on the descriptions of organs in the practical work of the nurse. The volume is extremely well organized, and the judicious use of heavy-faced type brings in their proper relations the various headings and sub-heads according to their importance. The illustrations are very unusual in their excellence; many of them are taken from Gray's Anatomy, and these have the names of the parts engraved directly on the face of the cut, so that each part, its relations and extent are manifest at a glance. At the end of each chapter there is a list of questions which serves to impress upon the mind the salient points in that chapter. At the end of the book there is a table of weights and measures, a full glossary, and an admirable index. This work stands alone in its efficiency as a teaching instrument in the nursing field.

It should be in the library of every training school. No lecturer on anatomy to nurses can afford to be without it.

DIAGNOSIS METHODS. A guide for history taking, making of routine physical examinations and the usual laboratory tests necessary for students in clinical pathology, hospital internes and practicing physicians by Herbert T. Brooks, A.B., M.D., Professor of Pathology University of Tennessee. Second edition, cloth, 82 pages. Price \$1.00. C. V. Mosley Co., St. Louis, Mo.

This is a work that is intended for him who has but a limited time for laboratory work. The tests given are accurate and reliable and give the essentials for making of diagnosis. In the fore part of the work is found an excellent outline for the taking of clinical histories. It is a handy volume and of value to those for whom it is written.

Miscellany

CONSTIPATION OF INFANTS

In the adjustment of diet to the particular requirements of the individual infant, constipation is often a prominent symptom that must be taken into account.

The baby that is habitually constipated is not likely to make the progressive gain that is desired, and when this condition exists for any great length of time it may lead into serious digestive disturbances.

Efforts that have resulted in a large measure of success for the Mellin's Food Method of Milk Modification have brought to notice certain food changes which may be made use of in dietetic treatment of constipation. These food changes are briefly set forth in a pamphlet which physicians may obtain by writing to the Mellin's Food Company, Boston, Mass.

PROPAGANDA FOR REFORM

THE ACTION OF HEXAMETHYLEMIN.—It has been shown by Hanzlik and Collins that hexamethylenamin can act only in body fluids which are acid in reaction, namely the gastric juice and the urine. The only part of the body in which hexamethylenamin may be expected to exert an antiseptic action is in the urinary tract, and then only if the urine is acid. If the urine is not acid already sodium acid phosphate should be administered to render it so. The administration of sodium or potassium acetate or citrate, in sufficient quantity, will render an acid urine alkaline and inhibit the action of hexamethylenamin (Jour. A. M. A., Jan. 3, 1914, p. 43).

RADIUM IN CARCINOMA.—Sparmann reports on the after-history of fifty-three cases of carcinoma treated with radium. Of these eleven have died since the

treatment, in six the tumor has disappeared, in five the condition seems improved, in seven the condition is aggravated and in the others the treatment was not continued because the condition of the patients had become worse. While these results show that radium is a remedy of use in the treatment of cancer it is not a sovereign remedy as some enthusiastic reports would have use believe (Jour. A. M. A., Jan. 17, 1914, p. 212).

RADIUM SULPHATE.—Radium sulphate is supplied in the form of a mixture of radium sulphate and barium sulphate and is sold on the basis of its radium content. Radium Sulphate-Standard Chemical Co., Radium Chemical Co., Pittsburg, Pa. (Jour. A. M. A., Jan. 3, 1914, p. 41).

THE QUALITY OF SODIUM ACID PHOSPHATE.—As it appears probable that the use of sodium acid phosphate will increase and since previous experience has emphasized the unreliability of little used drugs, the A. M. A. Chemical Laboratory deemed it important to examine the market supply. While the official sodium phosphate may be obtained of exceptional purity, the examination showed that the market supply of sodium acid phosphate was decidedly variable and much less pure, although not seriously impure. Based on the examination the laboratory proposed standards which were thought fair, both to those who make it and those who use it in their practice. The examination showed the product of the Mallinckrodt Chemical Works and of the Powers-Weightman-Rosengarten Company to comply with the proposed standards. Acting on the report of the laboratory, the Council on Pharmacy and Chemistry decided to describe sodium acid phosphate in New and Nonofficial Remedies and, having adopted the proposed standards of purity, accepted the two brands named for inclusion with N. N. R. (Jour. A. M. A., Jan. 10, 1914, p. 142).

WHEN IS A PATENT MEDICINE.—While some physicians and especially some medical journals have trouble in classifying certain proprietary medicines drug departments in department stores find the problem a simple one. In recent Chicago newspapers advertisements for Fellow's Syrup of Hypophosphites, Glycothymoline and Sal Hepatica look perfectly at home with Peruna, Circus Liniment and Beecham's Pills (Jour. A. M. A., Feb. 21, 1914, p. 631).

EFFECT OF TARTRATES.—Many of the organic acids, such as citric and acetic, are burned up in the body, giving rise to carbon dioxide and water; thus sodium citrate, for instance, acts just like sodium carbonate in the organism. On the other hand tartaric acid and its salts are for the most part not destroyed in the body and leave it in their original form and animal experiments have shown that large doses of tar-

trates may give rise to symptoms of nephritis. However, while the claim made for a certain baking powder that the tartaric acid of cream of tartar in it is "wholesome" is evidently unwarranted, W. Post has shown that in the doses in which tartrates in the form of purgative mixtures, etc. is ordinarily given, are probably without harmful effects (*Jour. A.M.A.*, Feb. 21, 1914, p. 616).

The Truth About Medicines

PYO-ATOXIN.—A box of Pyo-atoxin was submitted to the A.M.A. Chemical Laboratory for examination. The box contained thirty black capsules having the appearance of some of the popular gonorrhea nostrums. While the synonym "Pheno-Methylene-Formate" suggested that Pyo-atoxin was a definite chemical substance, the examination indicated that the powder contained in the capsules was a mixture of hexamethylenamin and methylene blue—two well known drugs the value and limitations of which are known to the medical profession. Pyo-atoxin is sold by H. O. Hurley, Louisville, Ky. and is said to be "An Antitoxic Agent Indicated in Gonorrhea, Cystitis Pyelitis and Bacteriuric Conditions" (*Jour. A.M.A.*, Feb. 14, 1914, p. 552).

LUCILE KIMBALL OBESITY CURE.—Lucile Kimball of Chicago comes to the obese with the message "I can make your fat vanish by the gallon." All that is needed, she says, is to take her treatment—no dieting, exercise or drugs needed. The treatment consists of pink pills, which are reported to contain red pepper, menthol and bitters, probably gentian or quassia; brown tablets which the chemists declared to be an old fashioned cathartic pill, and a powder, reported to consist of soap, Epsom salt and washing soda (*Jour. A.M.A.*, Feb. 21, 1914, p. 631).

LOUISENBAD REDUCTION SALT.—This is a white powder sold by Karl Landshut, Chicago, and is to be used dissolved in a bath. The A.M.A. Chemical Laboratory reported the powder to be composed of sodium sulphate, sodium chlorid and potassium chlorid. It is hardly necessary to say that taking a bath in a tubful of water in which a tablespoonful of the mixture has been dissolved would have no other effect than that obtained from bathing in the same amount of water without the mixture (*Jour. A.M.A.*, Feb. 21, 1914, p. 632).

EVERY WOMAN'S FLESH REDUCER.—This obesity treatment is sold by the Every Woman Company, Chicago, Ill. and is a white powder smelling strongly of camphor and is of the bath-powder type. Examination in the A.M.A. Chemical Laboratory indicated the powder to be a mixture of alum, Epsom salt with an effervescing base of citric acid and

sodium bicarbonate or possibly sodium carbonate with a small amount of camphor (*Jour. A.M.A.*, Feb. 28, 1914, p. 714).

"GET SLIM."—Jean Downs, New York, offers to reduce the obese with "a purely vegetable, pleasant, healthy drink." A box of "Get Slim" was examined in the A.M.A. Chemical Laboratory. It contained 15 large envelopes, the same number of smaller envelopes and a package of powder. The large envelopes appeared to contain only sugar tinted pink. The contents of the smaller envelopes appeared to be tartaric acid, also tinted pink. The white powder was concluded to be sodium bicarbonate only. The sugar and tartaric acid powders are to be made into lemonade with the addition of lemon. The bicarbonate of soda is dissolved and the solution taken before meals (*Jour. A.M.A.*, Feb. 28, 1914, p. 715).

PAM-ALA, ANOTHER WORTHLESS QUININ SUBSTITUTE.—According to advertisements Pam-ala, sold by the Pam-ala Company, New York, is "A new and efficient Remedy for Malaria." Its general characters, particularly its cumin-like smell, and also the advertising claims are very similar to Sinkina, a preparation which was shown to be worthless. Most of the testimonials sent out are rather old and are stated to come from physicians in Italy, Cuba, Porto Rico, Guatemala, etc. Two recent testimonials from physicians in the United States were investigated by the Council on Pharmacy and Chemistry and in each case it was found that the opinions had been based on insufficient trials and that the physicians on further use of Pam-ala had become convinced of its inefficiency. While the evidence indicated that the essential constituent of Pam-ala is oil of cumin, proven worthless in the investigation of Sinkina, a chemical analysis was not made by the Council because it was thought that the secrecy with which the identity of Pam-ala was surrounded and the extravagant and highly improbable claims were sufficient to condemn it (*Jour. A.M.A.*, Feb. 28, 1914, p. 715).

EXPURGO ANTI-DIABETES.—The claim made for Expurgo Anti-Diabetes (sold in Canada as Sanol Anti-Diabetes) that it is "The only positive cure for Diabetes" and others of this character should be sufficient to condemn it. Nevertheless medical journals advertise it and physicians have been found to give testimonials for it. Examination in the A. M. A. Chemical Laboratory showed that Expurgo-Anti-Diabetes is essentially a watery solution of plant extractives with small quantities of sodium salicylate and salt. The exploiters claim that their stuff contains the fruit and bark of jambul, rosemary, star anise and fluid extract of calamus, cinchona, cola, condurango and gentian. One of the claimed ingredients, jambul, was in vogue as a remedy for diabetes some years ago. It was tried and found wanting and relegated to the therapeutic scrap heap (*Jour. A. M. A.*, Jan. 24, 1914, p. 312).

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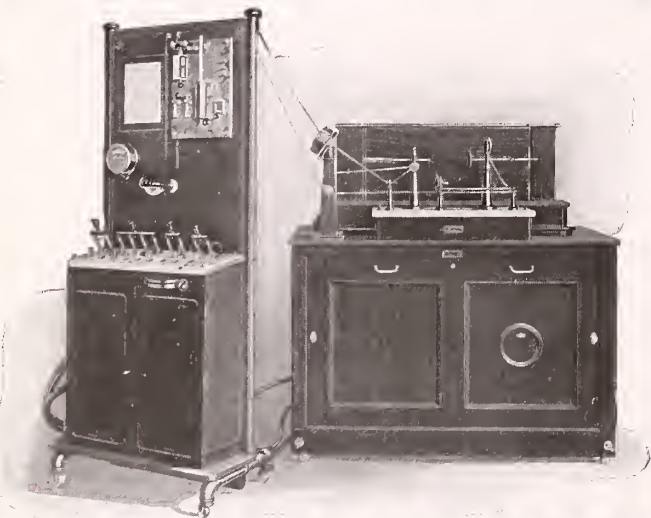
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THE VALUE OF RADIOGRAPHY IN THE SURGERY OF THE URINARY TRACT.*

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The diagnosis and treatment of surgical lesions of the urinary tract have been completely revolutionized through the use of the cystoscope, the ureteral catheter and radiography. The general surgeon can no longer afford to remain ignorant of and fail to utilize these diagnostic aids. Even the internist and general practitioner must be familiar in a less detailed manner than the surgeon, with the more important data furnished by these methods.

In presenting to you the many advantages which radiography of the urinary tract has conferred upon us, I shall attempt to treat the subject in as non-technical a manner as possible. When the X-Ray apparatus is employed alone it is called a "simple radiograph." When, on the other hand, we employ a solution such as collargol capable of giving a shadow of the ureter and renal pelvis, or insert into the ureter a catheter impregnated with lead or bismuth capable of casting a shadow, we speak of "combined radiography." (Figures 3, 4 and 5).

PREPARATION OF THE PATIENT.

In no other region is a preparation of the patient so necessary as in radiographs of the urinary tract. The routine method employed at the Michael Reese Hospital is as follows: No drug opaque to the ray should be administered for at least forty-eight hours preceding the examination. On the day preceding the examination the mid-day meal should be as full as is consistent with the patient's condition. Two hours after this mid-day meal, one to two ounces of castor oil is given, two or three evacuations being desired. The evening meal of the day before ex-

amination is very light, such as coffee, toast and one soft boiled egg. A colonic flushing is given one hour before retiring. On the day of the examination a colonic flushing is given about 7 A. M. For breakfast we give only clear tea and coffee and the examination takes place between 9 and 10 A.M. Thus extraneous shadows due to foreign substances in the alimentary tract are at once excluded and one can feel certain that a shadow seen in the course of the urinary tract is either due to a calculus or to one of the extrarenal or extraureteral causes to be enumerated below. We prefer castor oil to a saline cathartic because the latter causes so much gas formation, which clouds the pictures. In order to secure a satisfactory picture it is best to employ a soft tube and lead cylinders of varying diameters, aided by compression of the part to be radiographed. Some form of apparatus like that first suggested by Albers-Shonberg in 1906 fulfills all of these requirements, especially when one uses in addition the loofah-pad of Strater or the rubber balloon-pad in order to exert more localized compression over the kidneys and ureters. A diffuse picture is of value for purposes of general orientation and especially when collargol is injected, but the majority of radiographers who do a large amount of this work prefer to take compression pictures with lead or lead-glass cylinders covering a more circumscribed area. In Europe, Immelman, Haenisch, Haudek and others advocate taking five pictures, one for each kidney and upper ureter, one for each lower ureter, and a fifth one for the bladder. We have found that if a lead-glass cone having an opening of seven inches is used, two pictures, one for the upper and the other for the lower urinary tract (Figure 2) suffice for the thinner patients, especially if the circles overlap somewhat. In stout individuals it is best to take a separate picture of each kidney. Stereoscopic pictures and exposures at different angles are often necessary in order to clear up the nature of a suspicious shadow, especially those seen in the course of the pelvic portion of the ureter. Soft tubes are the best for this class of work, aided by the intensifying screen, the patient's shoulders being raised and the knees flexed so as to

*Read at the Nov. 6, 1913, meeting of the Kent County Medical Society at Grand Rapids, Michigan.

bring the kidneys and ureters as close to the plate as possible. It is very important to use letters to designate which are the right and left sides respectively of the pictures.

The various conditions which can give rise to

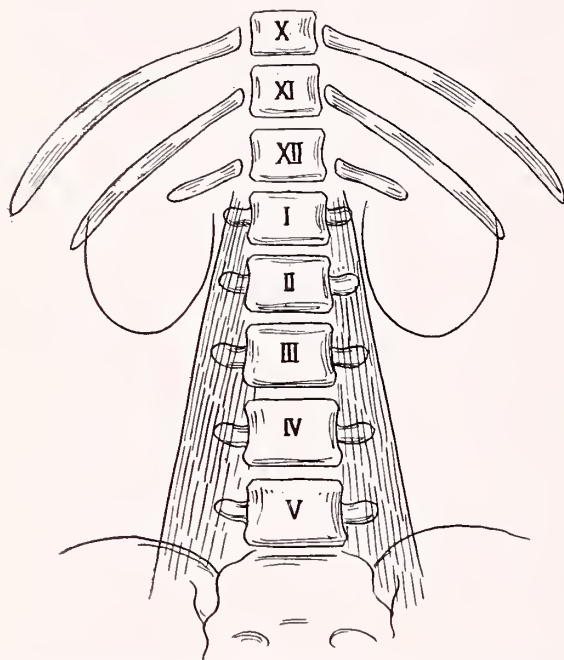


Fig. 1. Necessary qualifications of good skiagraph of both kidneys and upper portions of both ureters. Such a skiagraph must show last two ribs, transverse processes and bodies of all lumbar vertebrae, shadow of psoas muscle. In many pictures the shadow of the lower half of each kidney is visible.

a shadow to be distinguished from one due to a calculus of the kidney or ureter are best divided into:

EXTRARENAL SHADOWS.

1. Calcified areas due to tuberculosis of the kidney.
2. Areas of chronic induration of the kidney.
3. Atheromatous patches in the renal artery.
4. Calcified retroperitoneal glands.
5. Areas of ossification in the tips of the transverse processes of the lumbar vertebrae, or in the last costal cartilages or of the last two ribs.
6. Gallstones, pancreatic calculi or calcified areas in a cancer of the head of the pancreas or enteroliths in the appendix.
7. Calcification of ulcerations in the wall of ureter.

EXTRAURETERAL SHADOWS.

1. Calcified retroperitoneal or mesenteric glands.
2. Enteroliths in the intestine or appendix vermiformis.
3. Areas of calcification in the sacrosciatic ligaments, in myomata of the uterus, in dermoid

cysts, in the ovaries, in the prostate or in the vasa deferentia.

4. Phleboliths in the pelvic veins or areas of calcification in the iliac vessels.

5. Calcification in the wall of the ureter.

To those accustomed to the study of X-Ray plates of this region, the majority of the above causes of error present no difficulty. In many cases, however, it is necessary to take pictures at different angles or to inject a 10 per cent. solution of collargol into the ureter and renal pelvis, or to insert a shadowgraph catheter in order to differentiate a real from a pseudo-shadow (See Figures 3, 4 and 5). A good picture of the upper urinary tract must include (See Figure 2) the 11th and 12th dorsal vertebrae, last two ribs, the bodies and transverse processes of the lumbar vertebrae and the psoas muscle. Good technicians are now able to get the shadow of practically the entire kidney and the details of the psoas muscle on every picture except in very stout individuals and in children.

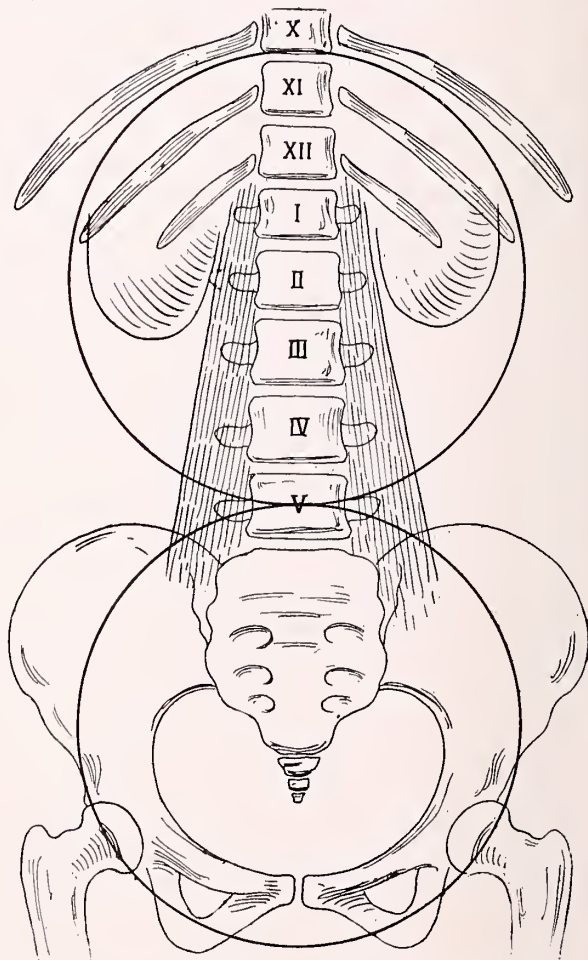


Fig. 2. Diagrammatic representation of areas to be included in two or three skiagraphs of kidneys, ureter and bladder.

Pictures of the lower urinary tract should include the sacral vertebrae, and enough of the ilium to include the course of the iliac ureter and the pubic symphysis and obturator foramina (Figure 2).

PYELOGRAPHY.

In 1906 Voelcker suggested a method of injecting into the ureter and renal pelvis silver preparations impermeable to the X-Ray in order to study the size, position and form of the renal pelvis and both ureters at the same time. The solutions at present used for this purpose are collargol (5 to 10 per cent.) cargentos and silver iodide (5%). I will not describe here the method in detail nor discuss the bad results in recently published cases following the injection of collargol. I do not believe there is any danger if one first ascertains the capacity of the renal pelvis by injecting methylene blue solution and then does not exceed this quantity when the collargol is employed, using gravity as the only pressure. I shall refer later to the great value of pyelography in the diagnosis of various conditions.

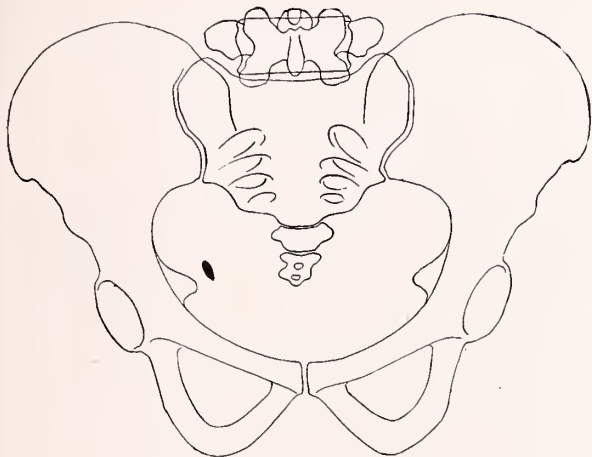


Fig. 3. Shadow of ureteral calculus in pelvic portion of right ureter. (Compare with Figs. 4 and 5).

USE OF THE SHADOWGRAPH CATHETER.

The introduction of ureteral catheters sufficiently impregnated with bismuth or lead to give a distinct shadow when introduced into the ureters, has completely superseded the lead fuse wire inserted within the ordinary ureteral catheter. The use of these shadowgraph catheters (See Figures 3, 4 and 5) are indispensable in determining whether a shadow is within the kidney or ureter or external to them, and also of the greatest aid in differentiating kidney from other abdominal tumors. I invariably employ, not only for this purpose but for ureteral catheterization, an imported catheter whose wall is impregnated with lead and hence gives a deep shadow, but has the additional advantage that it can be boiled without damaging the material. I have enumerated above the various extrarenal and extraureteral conditions which can give rise to shadows easily mistaken for calculi.

The use of the shadowgraph catheter is indispensable and to operate upon the mere sus-

picion that a shadow is a calculus, if there is any question, is absolutely inexcusable and can result in great embarrassment to the operator. As my experience in this field grows I am becoming more and more careful, especially in the

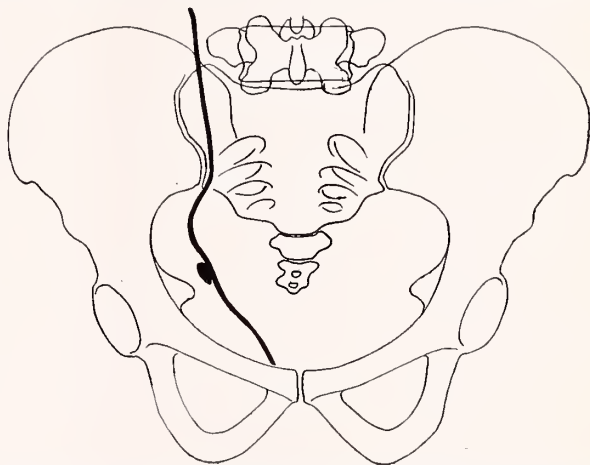


Fig. 4. To show that shadow of a ureteral calculus lies close to a shadowgraph ureter. (Compare with Figs. 3 and 5).

cases showing shadows in the course of the ureter, about not making a positive diagnosis before taking a second radiograph after I have employed the shadowgraph catheter. The cases which are shown in Figures 6 and 7 may be of interest in this connection.

RENAL CALCULI.

If the shadow of the kidney shows upon the plate, the location of the calculus, i. e., whether it is in the pelvis or the parenchyma of the kidney, is comparatively easy. In our own work we are now able to see the shadow of

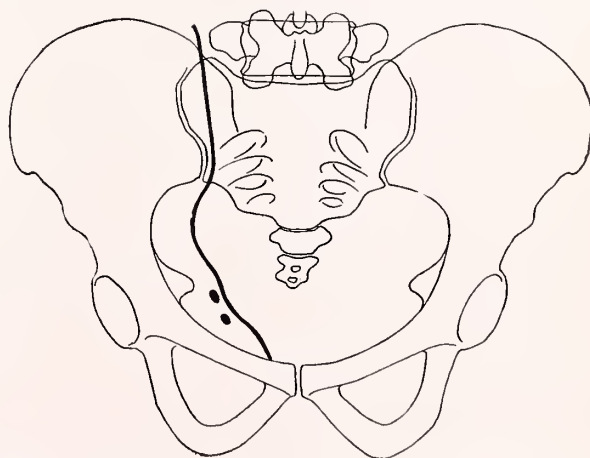


Fig. 5. This shows that extra-ureteral shadows do not lie as a shadowgraph catheter. (Compare with Figs. 3 and 4).

the kidney in the majority of cases, even though the patient be very stout. In the absence of such a kidney shadow we have many other data which tell us not only where a stone is located in the kidney, but also, to some extent, the amount of destruction of the parenchyma.

CALCULI AT THE JUNCTION OF THE URETER AND RENAL PELVIS.

These shadows are either oval or show a nipple-like projection and in a normal lying kidney are at the level of and close to the transverse process of the first or second lumbar vertebrae. (Fig. 8). Of course there are exceptions to this but it holds good in the majority of cases, and if the kidney can be brought well out into the incision, we are able to remove

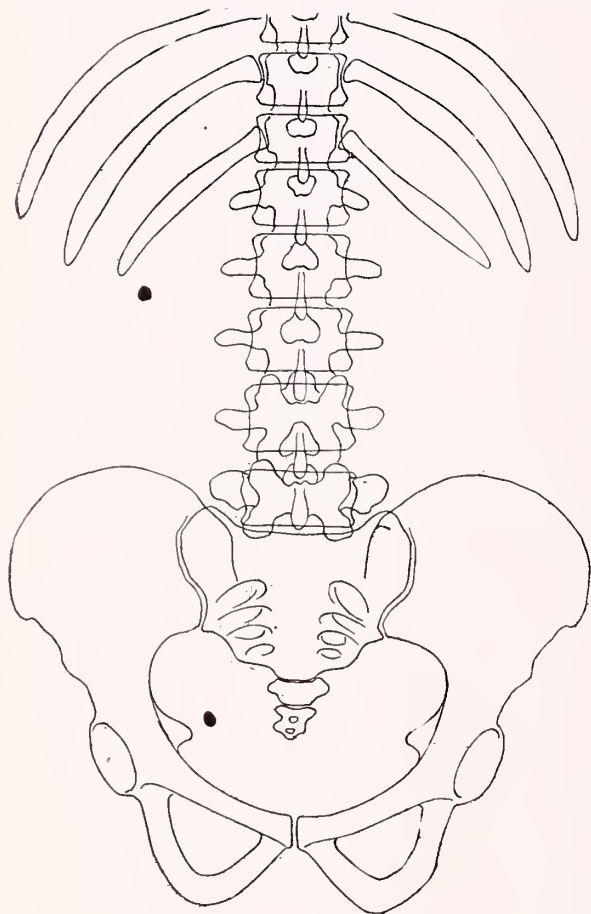


Fig. 6. X-Ray tracing of calculus in pelvis of right kidney and of shadow in pelvic ureter found due to calcified area in ovary (case L E) of same side.

the calculus through a small incision in the posterior aspect of the renal pelvis. This is the easiest and most conservative operation for removing a calculus in the kidney, and the advantages of such a pyelotomy over the older and more dangerous operation of nephrotomy have been fully discussed in my article published in the *Journal of the Amer. Med. Assn.* in 1912.

CORAL-LIKE OR BRANCHED SHADOWS. (FIG. 10.)

These usually mean that the entire renal pelvis is filled by a calculus which may be either a single one and have formed a perfect mould or cast of the pelvis, or may be formed by a number of large calculi lying in close relation to each other and filling not only the pelvis proper but also the primary and secondary calyces.

SCATTERED MULTIPLE SHADOWS. (FIG. 11.)

The wide distribution of shadows, especially if there is much pus in the urine, usually means

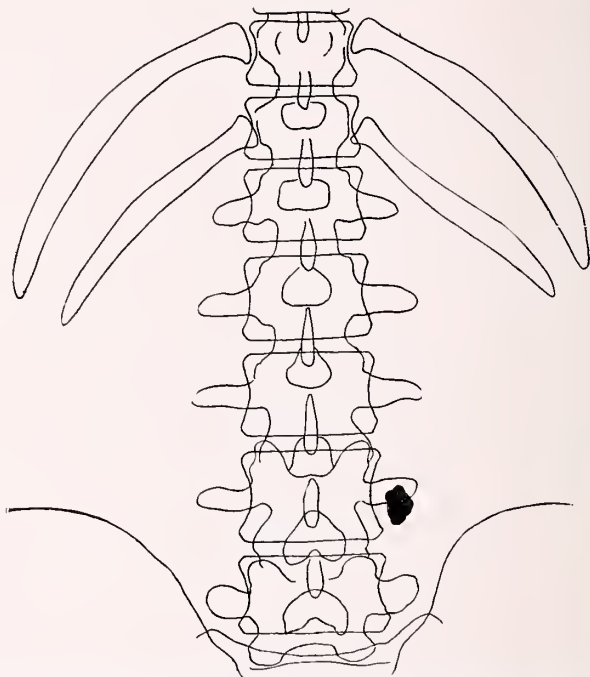


Fig. 7. X-Ray tracing of shadow in course of lumbar ureter due to calcified retroperitoneal gland. (Case 708).

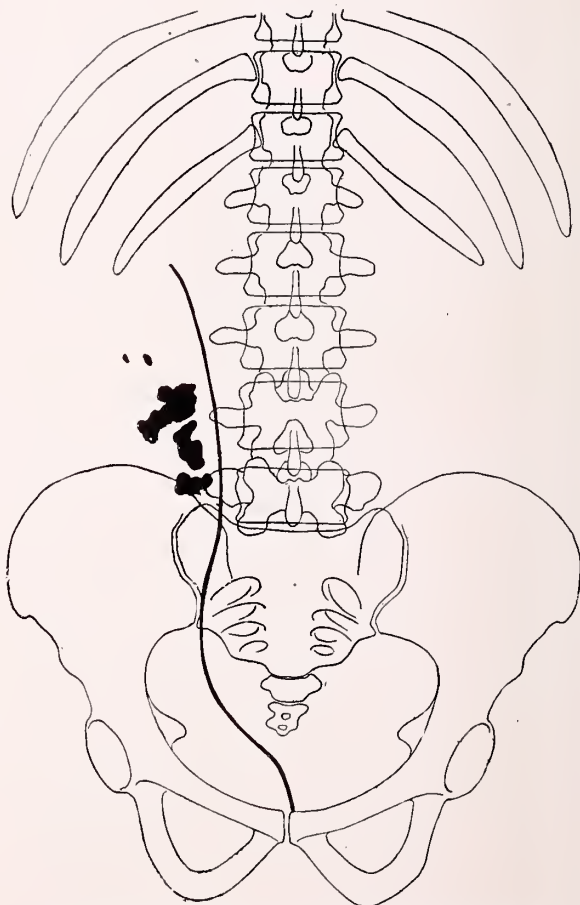


Fig. 8. X-Ray tracing of shadows probably due to calcified retroperitoneal or mesenteric glands shown to be extraureteral by use of shadowgraph catheter. (Case 1163).

that calculi lie either in much dilated calyces, i. e., a hydronephrosis, or that the parenchyma is replaced by a number of abscess cavities containing calculi, i. e., a calculous pyonephrosis. In this and the preceding class of cases one should never attempt a removal of the calculi

to do the work of both kidneys, should the operator deem it inadvisable to save the kidney containing the calculi.

BILATERAL CALCULI. (FIG. 10.)

I have called attention above to the fact that

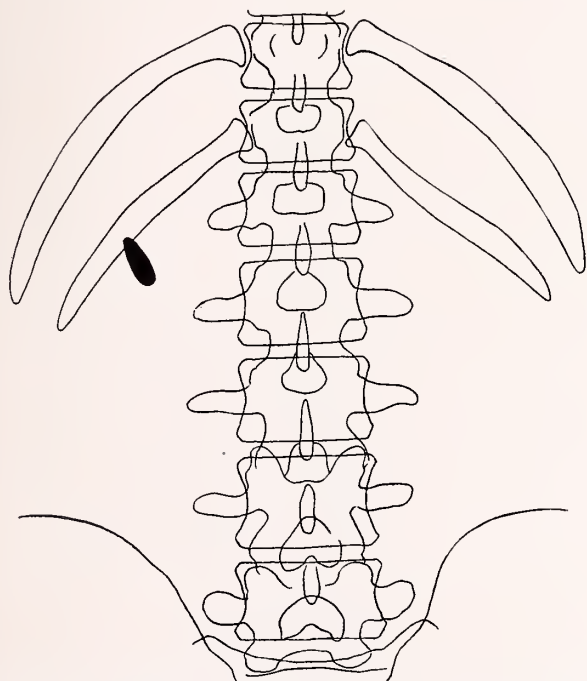


Fig. 9. Location of calculus at ureters pelvic junction. These are easily removed through an incision in posterior aspect of renal pelvis,

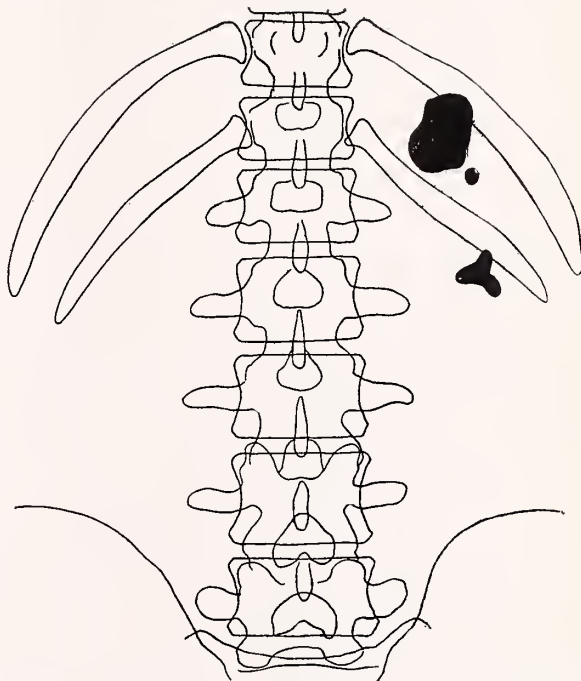


Fig. 11. Typical wide distribution of multiple calculus shadows in hydronephrotic or pyonephrotic cavities.

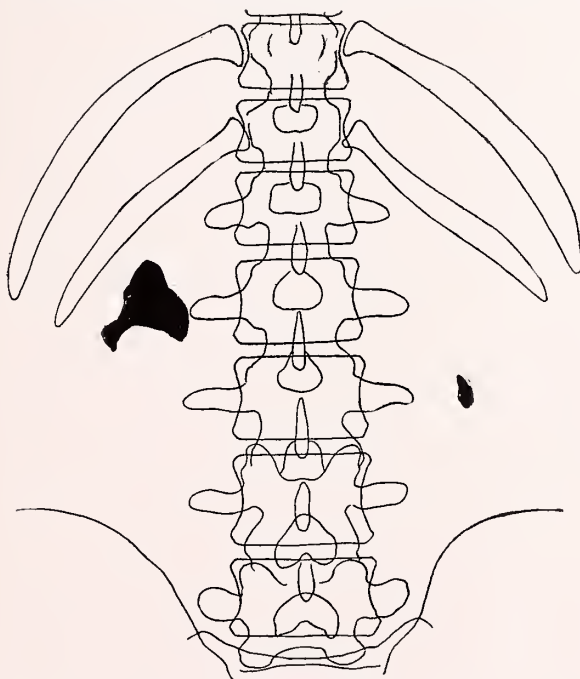


Fig. 10. X-Ray tracing of bilateral Renal Calculi (case 902).

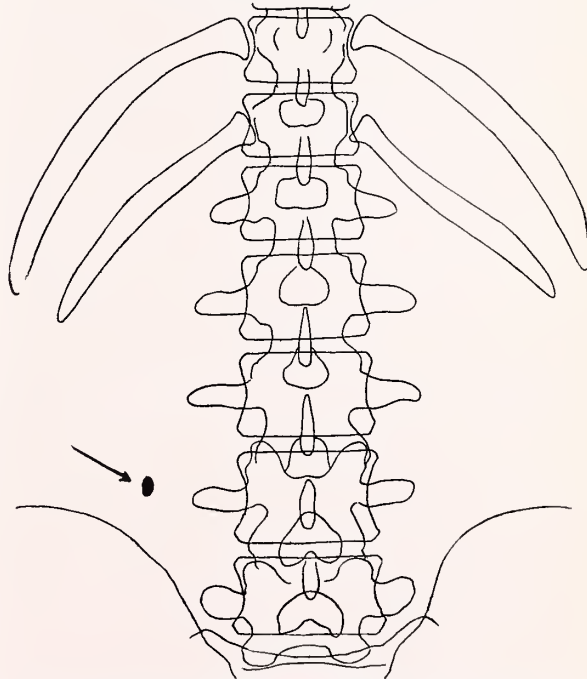


Fig. 12. X-Ray tracing of calculus in lumbar ureter. Numerous colics without change in position of shadows. (Case 540).

without having catheterized the opposite kidney and made various tests in order to determine whether an opposite kidney is present in an undeveloped form (congenital hypoplasia), and whether the opposite kidney would be able

no X-Ray examination can be considered as complete unless both kidneys and both ureters have been included. When we recall that bilateral calculi occur in over twenty per cent. of all cases, one need not emphasize this again.

The various combinations are: (a) Calculi in both kidneys; (b) same and both ureters; (c) same and one ureter; (d) calculi in kidney and ureter of same side and ureter of opposite side; (e) calculi in both ureters. I have observed such cases quite frequently. I must not

I must again remind you that a true calculus shadow may be present in the kidney and an extraureteral shadow below it. In one of my cases (Figure 6) the lower shadow proved to be a calcareous nodule of the ovary coexistent with a calculus lying in the pelvis of the kidney of the same side. I cannot urge too strongly to have every case radiographed in which the

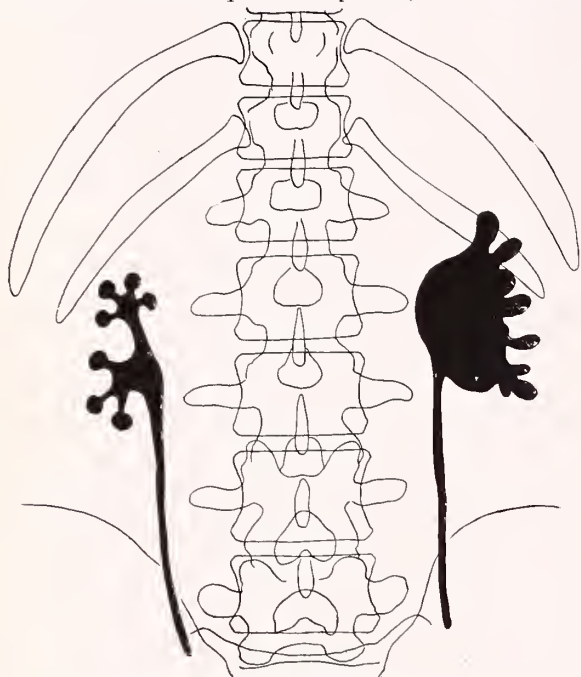


Fig. 13. Normal renal pelvis on right side and hydronephrotic pelvis on left side. Both filled with 10 per cent. collargol.

omit to mention that calculi may be present anywhere in the urinary tract and yet any of the extrarenal or extraureteral shadows enumerated at the beginning of this article be present at the same time. The greater our experience in this field the more careful do we become in the interpretation of plates.

URETERAL CALCULI.

We divide the ureter into four parts, the lumbar, iliac, pelvic and the portion lying within the wall of the bladder, the intraparietal. Nearly 80 per cent. occur in the pelvic portion, i. e., from the brim of the true pelvis to the bladder. In the majority of cases the history of colics, anuria or infection is of aid in interpreting the shadow, but there are many cases in which shadows are seen in which there have been no symptoms or where these have been altogether on the opposite side. Uric acid calculi will often fail to show a shadow even though the history of their passage is quite clear. If a shadow is seen in the line of the ureter (Fig. 12) the interpretation of the radiograph usually presents no difficulty to the experienced eye. If, however, the shadow is away from the course of the ureter, or there is the least doubt as to whether it is due to a calculus, it is best to take some additional pictures at different angles, either with or without having introduced the shadow-graph catheter into the corresponding ureter.

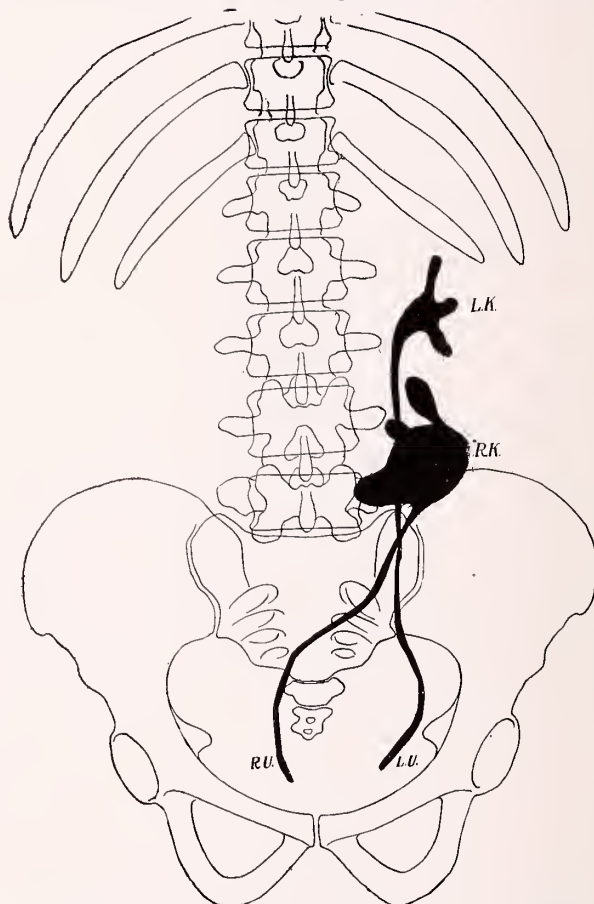


Fig. 14. Two kidneys on one side. Pelvis and Ureter filled with Collargol before taking radiograph. L. K. Left kidney showing normal renal pelvis. R. K. Right kidney showing hydronephrotic pelvis. L. U. Left Ureter. R. U. Right Ureter.

diagnosis of appendicitis, acute or chronic has been made, but not sufficient evidence found at operation to justify such a diagnosis. Many of these are cases where a ureteral calculus has been overlooked.

PYELOGRAPHY.

A glance at Figures 13 and 14 will show how the injection of collargol into the renal pelvis has been of aid in the differential diagnosis of renal from other abdominal tumors, or hydro and pyonephrosis, of tumors and tuberculosis of the kidney, of strictures of the ureter, of horseshoe and solitary kidney, of kidney from gallstones, and of recognizing the location of abnormally placed kidneys.

The normal renal pelvis will hold 4 c.c. of fluid. A hydronephrotic pelvis will hold up to 150 c.c. (Fig. 13).

TOXEMIA OF EARLY PREGNANCY.*

RICHLARD R. SMITH, M.D., F.A.C.S.

GRAND RAPIDS, MICH.

Three deaths about two years ago from the toxemia of early pregnancy coming under my observation within a few months of each other have led me to report them, with the idea of perhaps helping to avert similar unfortunate outcomes in these not very infrequent cases.

CASE 1. The first case was that of a woman thirty years of age, who had been married four years, with one previous pregnancy ending in an early abortion without known cause. Possibly the fact that she was more than usually desirous of having children led Dr. J. B. Whinery and myself to a more conservative handling of her case than otherwise might have been ventured. Certainly in the light of my own experience since then and the knowledge obtained by recent investigation, it was unwise.

She menstruated for the last time in May, missed in June and soon afterwards became nauseated. The nausea persisting, she was put to bed and careful feeding instituted, with such light drug treatment as seemed indicated. At no time was vomiting extreme, but from the start the amount of nourishment she took and retained was decidedly less than the normal amount. Everything that careful nursing and suggestion could do for her was apparently carried out. From time to time there was betterment in her condition and on August 1st, when I first took charge of the case, the outlook for her recovery was encouraging, although she still vomited from three to four times a day. There was a moderate loss of color and some, though not marked, loss of flesh. There was considerable gas in the intestines, with at times moderate distention. There had been at times a slight trace of albumin in the urine and now and then a few casts, but even these disappeared later on.

After the first of August we were able to increase the nourishment somewhat but never to anything like the normal amount. She was able at this time to sit up a little each day and the pulse remained about 80, temperature normal. The pelvic examination revealed nothing abnormal. Her general condition remained on the whole about the same, with perhaps a slight loss of flesh and color. There was no jaundice. The mental condition was satisfactory, with the exception of some periods of despondency, which might have been accounted for by the fact that she was fearful her pregnancy might have to be terminated.

The vomiting several times suddenly increased without any apparent reason and at a time when she seemed to be improving. These storms of increased vomiting without apparent cause were common to all the three cases here reported. After one of these storms we became rather alarmed and on August 20th the uterus was evacuated under nitrous-oxide-oxygen. This was carried out with little loss of blood and apparently without causing any markedly increased weakness. The pulse was accelerated immediately following operation but subsided to about 80 four days afterward. In the decidual tissue removed were old hemorrhagic areas, a further evidence of a slight bleeding from the uterus noted at times during her illness.

She vomited several times the day of operation but none the next day, and took a considerably increased amount of nourishment. In the afternoon

of the second day she was slightly delirious for a period of about ten minutes in the afternoon. This was not repeated until the next day, when it recurred. Some vomiting again returned but from then until the end it was not marked, and she was able to retain a fair, though by no means large, amount of nourishment. Rectal feeding which had been resorted to during her illness was resumed. As stated, her pulse was about 80 four days after operation and then gradually rose until her death two weeks following operation.

The urinary findings following operation were negative with the exception of a very small amount of albumin and a few casts. It was normal in quantity and of normal specific gravity. About the time of operation some loss of vision in the left eye was noted but examination of the eye grounds was unsatisfactory. The estimation of the ammonia co-efficient was attempted at various times during her illness but for technical reasons was rather unsatisfactory, our experience with this procedure having been small. A discussion of the urinary examination I will take up later.

During the last two days of her illness she was delirious most of the time and restless. There were no convulsions. The red count ranged between two and a half, and three million; leucocytes four to eight thousand, with no disturbance in the differential count; hemaglobin 40 to 50 per cent.

The rather marked anemia in this case is interesting in view of the recent theory that pathological changes in the spleen produced by the toxic agent may be a factor in the production of extreme degrees of anemia during and following pregnancy.

There was no autopsy in this case.

CASE 2. Mrs. C., a woman thirty years of age. One child four or five years ago. She had considerable vomiting at this time and an emptying of the uterus had been undertaken. Just what was done is uncertain, but it did not end the pregnancy. The vomiting diminished after this and she went on to full term, with delivery of a normal child.

She flowed for the last time about October, 1911. Vomiting began soon after this and has persisted since. She had tried various drugs, had been on a very limited diet, and had lost considerable strength and flesh. About 48 hours before I saw her an attempt had been made to empty the uterus under chloroform but, although there has been some bleeding, pregnancy had apparently not been terminated. Vomiting had continued, there had been some flowing, and the abdomen was quite tender. In this case also there had been marked distention at times during the pregnancy. The pulse at the time I saw her was 130 and weak. There was no temperature. The mental condition was clear, although she was rather restless and anxious. She had had a very small amount of albumin and a few scattered casts.

On December 11th (the morning after I saw her), and when three months pregnant, the uterus was evacuated under nitrous-oxide without incident. She was under the anaesthetic about twenty minutes. At the time this case was first seen the prognosis was extremely grave. Here plainly, as in our first case, had occurred symptoms and conditions which called for a much earlier termination of the pregnancy. Vomiting ceased after 24 hours but the pulse gradually rose and she died four days after operation. The use of chloroform in the first attempted evacuation of the uterus is also, in the light of our present day ideas, open to criticism.

CASE 3. A patient thirty-six years of age, married seven years. One child two years, nine months old. No trouble with vomiting during this pregnancy. Patient had always been exceptionally well, strong, robust and energetic. Before this pregnancy she had been suffering from a slight nervous

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exhaustion, due to overwork, but had otherwise been well.

Her last menstruation came in the latter part of November, 1911. There was no particular nausea during the first month, but about January first she began vomiting and continued for eight weeks. At this time she was taken to the hospital, with the idea of evacuating the uterus, but she became somewhat better under hospital care, and this was deferred. During all these eight weeks previous to entering the hospital she retained almost no food; and although, as stated, she was somewhat better after entering the hospital, the improvement did not continue long, and a very low diet was again made necessary by the continuation of the vomiting. She had lost about twenty-five pounds in weight.

About the fifteenth of March she developed some mental symptoms, becoming apathetic and answering questions slowly and with difficulty, although she was not actually delirious at this time. Small amount of blood appeared in the vomitus at times and for weeks before she was first seen (the latter part of March) there had been at times some jaundice. The abdomen was more or less distended and the stools were offensive. An ordinary examination of the urine made at different times during this period revealed nothing abnormal. When seen she was rather pale, and had evidently lost some flesh but was by no means extremely emaciated. The tissues were soft and the mental condition was apathetic, as above stated; the abdomen was a little distended with gas; the uterus about four months pregnant; otherwise the pelvic condition was normal. The prognosis was very grave. However, on March 26th, 1912 (the day after I first saw her), the uterus was evacuated under nitrous-oxide-oxygen without untoward incident. Following the operation she seemed better and again took a little nourishment. This was pushed as rapidly as possible, with rectal feeding, but on the third or fourth day there was more vomiting and the diet was again necessarily curtailed. On account of her mental condition, which was becoming gradually worse, the stomach was washed frequently and followed by nourishment given through the stomach tube. The abdomen remained fairly flat, although at times somewhat distended. Under this treatment the vomiting was at no time following the operation excessive but other conditions did not improve. She became more apathetic, sleep was broken and obtained with difficulty. The pulse remained in the neighborhood of 100 until just before death, when it gradually rose. In this case, as in the first, sugar in solution was tried, with the hope that we might thereby increase the nourishment.

The mental disturbance of this woman for a week previous to death was marked. She was delirious making it difficult, as above stated, to feed her except through the stomach tube. She was at times very much excited; at other times lying almost in a coma. There were occasional periods, as in the first case, when her mental condition was fairly clear. Nystagmus was present. Two days before death small hemorrhages were found in the retina of the left eye a short distance above the disc on examination with the ophthalmoscope. There were at times slight flecks of blood in the vomitus.

In this case a post-mortem was obtained. There was marked fatty degeneration of the liver, about four-fifths of the organ being involved, but the liver was apparently normal in size. The edges were much sharper than usual, indicating some atrophy (liver exhibited). The section shows microscopically decided fatty degeneration of about two-thirds of the cross section. Here and there in the remaining third are areas of fatty degeneration, giving it a rather mottled appearance. The reddened areas de-

note a chronic passive congestion (nutmeg liver). Sections under the microscope show fatty degeneration limited to a great extent to the center of the lobule. Necrotic areas are present throughout. The heart was slightly atrophied, the myocardium fragile and showing degeneration changes. There was an old healed endocarditis of the mitral and aortic valves. The kidneys were apparently normal in size; capsule stripped easily. On section the kidney presented a mottled appearance caused by fatty degeneration—otherwise negative. The spleen was large and on section, the splenic pulp could be scraped off; or, in other words, acute splenic tumor. The gastric mucosa presented a few punctuate hemorrhagic areas, with slight congestion. The mucosa of the small intestines presented a few minute hemorrhagic areas, with slight congestion. Large intestine negative. Pancreas showed slight atrophy. The lungs, pleura and uterus presented nothing abnormal.

There is perhaps no phase of obstetrics which has excited more interest during the last ten years than that of the toxemia of pregnancy, as would be indicated from the great amount of literature which has been presented to us. Many of the symptoms or phenomena occurring during the pregnancy, and formerly considered as manifestations of a physiological condition, are now known to be the result of a toxemia peculiar to the pregnant woman. The nature of this toxemia and its origin still remains a matter of uncertainty, although a multitude of theoretical explanations have been advanced. Most agree that the toxemia in early pregnancy and that occurring later on are in all probability identical and vary only in time, degree and manner of appearance. Whether the symptoms be mild or severe depends upon the severity of the toxemia and the pathological changes resulting from it. The same toxin which causes pernicious vomiting and later eclampsia may produce but milder symptoms in the form of headaches, mild vomiting, changes in mental condition, stomach and bowel conditions, and the so-called neuralgias and diffuse pains of pregnancy.

Since we are still uncertain as to the exact nature of this toxin and its production, and of the pathological changes occurring in milder cases, any classification that we may make of the vomiting of early pregnancy is more or less arbitrary. It is common to distinguish two or perhaps three forms—a so-called nervous vomiting, a so-called reflex vomiting, and that due to a distinct toxemia. With further study we are led to believe that the division into two classes is better, since the so-called reflex vomiting is supposed to be the consequence of pathological changes present in the pelvis, but has not stood the test of strict investigation. These patients we may properly today place in the neurotic class. The good results sometimes obtained from the correction of pelvic conditions is very likely due to suggestion. We do know that these patients of the so-called neurotic type

are peculiarly susceptible to suggestive therapy, betterment often following well directed efforts along this line. We cannot gainsay, however, that these so-called nervous cases are not fundamental of toxic origin, and it is the view of Williams, Ewing and others that a mild toxemia operating in a patient peculiarly disposed nervously may produce symptoms strongly simulating the plainly toxic form.

It is extremely necessary to differentiate between these two forms, and yet the diagnosis is often not easy. The problem becomes more complicated when we remember that the question of starvation enters often into consideration. This latter factor in a neurotic case may so accentuate the severity of the symptoms as to itself produce death. As a matter of fact, however, patients of this class as a rule respond rapidly when the diet can be largely increased, whereas in the toxic type no such good results follow. In the early stages the two forms would seem very hard to distinguish. Later on (and unfortunately often when it is too late) the difference becomes more apparent. In the toxic type mental symptoms appear, jaundice, vomiting of small quantities of blood, and often considerable anemia. In the nervous type no such manifestations occur.

It has been my experience that the early symptoms of signs of exhaustion, shown by extreme nervousness, excitability and a marked increase in pulse rate, belong to the nervous type, whereas the toxic variety will have a more insidious course. The pulse remains practically normal, the physical examination, beyond some loss of weight and tone, and a mild palor, give but negative findings. It is to be emphasized that the urine to all ordinary examination, remains satisfactory, a trace or a small amount of albumin and a few casts being about the extent that we may expect, and even that not present in the majority of cases. I would not, however, wish to place too much emphasis upon such a differentiation as I have mentioned.

This brings us to the question of the ammonia co-efficient. Nitrogen is excreted in the urine normally in the form of urea nitrogen forming about 87 per cent. of the total; in the form of ammonia nitrogen in about 4 per cent. of the total, purin bodies in the form of leucin and tyrosin (purin body nitrogen) 3 per cent., and so-called "rest" nitrogen about 6 per cent. This includes the amino acids often mentioned. The ammonia nitrogen is of peculiar interest and importance because of its marked increase under certain conditions. With it take place a diminution of the urea and increase in the rest nitrogen. In the toxemia of early pregnancy, and as has been shown in patients who are on an extremely low diet, a marked increase of ammonia per cent takes place, going from the normal 4

per cent. to 15, 20, 30 and even 40 per cent. It is because of the discussion that has taken place over the value of this ammonia co-efficient, the doubts that have been expressed as to its significance, and the fact that the laboratory estimation is tedious and difficult, that it is safe to say it has not been used except in well equipped laboratories and by men particularly interested in this problem. Such has been until recently my own doubts in the matter that it was not employed in any of the three cases above mentioned. In the light of the present day knowledge I regret this, for it might have been of value to us. If the results as given today are substantiated by further experience, this will undoubtedly become a necessary laboratory examination. The fact remains, however, that the practitioner today does not employ it but is depending upon other clinical data. These urinary changes and the increase of the ammonia present are probably the result of pathological changes in the liver, with consequent changes in metabolism. The pathology of this condition is today well established. As a result of a toxin present in the blood of the pregnant woman there takes place well defined changes in various parenchymatous organs. The liver is the organ most severely affected. The case which I have presented with its post-mortem findings is typical.

As to therapeutics: Knowing the results that may follow from procrastination in cases of early toxemia, it goes without saying that every woman presenting anything but the very mildest form of vomiting should receive serious consideration and be under constant supervision. When a woman is vomiting to such an extent as to prevent her retaining sufficient nourishment, the question to be immediately settled is whether this vomiting is of toxic or neurotic origin. The patient should be put to bed in quiet surroundings, removed if possible from the family environment. All food per mouth may be temporarily withdrawn, and rectal nutrient enemas resorted to. The use of continued salines per rectum or of hypodermoclyses will be found valuable. This is a situation peculiarly adapted to intelligent therapeutic suggestion and must be met according to the mental state and disposition of the patient. Not infrequently she will have an aversion to her present pregnant state. This may sometimes be remedied by an attempt to change her views on the subject and presenting the dangers of abortion. We have all seen, I think, marked results from this course. Williams lays particular stress upon it and his results have been remarkable. If now, after a physical and the ordinary urinary examinations, we can obtain an estimate of the ammonia, such is we believe today desirable. The exhibition of sugar in the toxic cases is of very questionable value, although its use has

been suggested. If these measures have been thoroughly carried out and there is no improvement, the uterus should be emptied since it is only by its prompt evacuation that we may hope to check pathological changes in the liver and other organs, and prevent the disastrous results shown in the three cases that I have just cited.

It is to be noted that in the cases here reported, as well as in those cited by others, death occurred some little time after the uterus was emptied, even after temporary improvement, showing that irreparable damage had already occurred. Chloroform should never be used as an anaesthetic when an operation is undertaken. Attention was first called to this by Whipple and Sperry, and concurred in by Williams. The damage to the liver resulting from chloroform poisoning is identical to that from the toxemia of pregnancy, the findings common to both being a central necrosis of the liver lobules.

The following bibliography contains many of the best articles on this subject and has been reviewed in preparing this paper.

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PUERPERAL ECLAMPSIA AS ENCOUNTERED BY THE COUNTRY PRACTITIONER.*

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I suppose that puerperal eclampsia presents the same conditions wherever encountered. Whether they occur in the country or in the city, in the practice of the most ignorant midwife or in that of the ultra-accomplished obstetrician, all cases will present about the same problems for consideration.

Whatever element of difference there may be will probably be found in the immediate surrounding of the patients, or in the unfortunate individuals upon whom rests the responsibility for the care of these cases.

With these thoughts in mind, I take it for granted that this paper will be expected to reflect something of my personal experience with this disease and my ideas regarding it. In the past twenty-one years I recall sixteen cases of puerperal eclampsia which I have seen. I practiced nine years before I saw a case of this kind. Seven of these cases were my own, of which I have more or less complete records. Nine were seen in consultation, and of these I have no permanent records, and perhaps do not include all the cases which I have seen, but all that I can recall at this time.

As to the clinical history of my own cases, four were primiparae and three multiparae. Three of them were ante-partum cases, all primiparae. One was supposed to be at term—one between six and seven months pregnant, and in one a single convulsion came twenty-four hours before the beginning of a spontaneous labor. Three of the cases were intra-partum and one post-partum, convulsions coming one week—lacking a few hours—after delivery.

One case—classed as antepartum—presented some curious symptoms. A young primipara had a convulsion twenty-four hours after confinement. She had a breech presentation, a rather tedious labor with no symptoms of convulsions until twenty-four hours after delivery, when she had eight in one and one-half hours, going from one into another before she had ceased jerking from the preceding one.

We are often asked the question: "Why does a pregnant woman have convulsions?" I am sure I do not know any more about it than I did twenty-one years ago when I saw my first case; perhaps not as much as I thought I knew then. At that time, if I examined the urine every two to four weeks and found it free from albumin I considered my patient safe from convulsions. Since then I had a case which developed convulsions within ten days after I had ex-

*Read before the Gratiot County Medical Society.

amined the urine and found it free from albumin, and another case in which the urine, drawn by catheter during the attack, showed only a bare trace of albumin, and twenty-four hours after none whatever. Again, I once believed that puerperal convulsions were caused by the so-called uremic condition, plus some nervous factor. In all the cases of nephritis, both acute and chronic, which I have seen outside of pregnancy, I can only recall two or three cases which had convulsions.

As to the nervous influence, I had a rather strange experience in my first case. The woman was an elderly primipara, and the urine had shown some albumin for several weeks. Confinement was expected at any time, but the urine became so unsatisfactory that I thought I ought not to delay delivery any longer and called to tell her so. Until this time she had felt perfectly well. She at first objected to the proposed treatment, and before I had completed my argument she became very restless and complained of a pain in her head. I thought she was upset by our line of talk, and did not take it very seriously at first, but she had convulsions three or four hours afterwards.

Whatever significance albumin may have in the urine in these cases, I do not think I have ever had a case which did not at sometime show at least a trace of albumin. Curiously enough, I find on my records an equal number of cases which showed albumin in the urine but did not develop convulsions. One of these women had albuminuria in both her pregnancies—she has been pregnant only twice.

It is generally believed that the direct cause of puerperal eclampsia is a toxin developed by metabolism within the body of the woman, or her fetus, or both. We will all agree, I think, that the fetus must have something to do in producing this poison for the reason already stated—that a woman with similar clinical symptoms minus the fetus would not be expected to develop eclampsia. We would suppose that metabolism should be essentially the same in all pregnant women, and if so is this toxin the result of a perverted process, or is it an accumulation by over production or retention of what is normally produced in every pregnant woman by her fetus? I do not think that the question has ever been solved, but I believe it will be some time. I am at present believing that the nitrogen products of metabolism in some way stand in close relation to this poison.

I believe that the change in the kidneys is due to the irritating effect on their structure of this poison and whatever part they may take in any case results from the impairment or suppression of their function.

I have thought that over eating, especially of nitrogenous foods, had a great deal to do with some cases perhaps by adding to the work of

the already overburdened kidneys. I believe that a great many pregnant women eat too much and take too little exercise.

A young woman between six and seven months pregnant, who had shown some albumin in the urine, ate freely of ice cream and cake at a party one evening, and developed convulsions the next morning. In another case, the urine was examined about three weeks before delivery by a physician in another part of the state, and pronounced all right. The young woman came to her parents' home shortly before Christmas. The second day of January she was confined and had convulsions and showed albumin in the urine afterwards. Perhaps the Christmas and New Years dinners had nothing to do with the attack, but I at least thought of the coincidence.

Against the fetal theory along comes a woman separated from her fetus a week before and still has convulsions.

The fact that the urine shows only a little or possibly no albumin at all does not prove that the kidneys are sufficient. They might be perfectly healthy and still be insufficient. Albumin in the urine only shows that the kidneys are damaged and then they sometimes seem to be sufficient for elimination, at least all pregnant women with albumin in the urine do not have convulsions.

I do not suppose that anyone believes in any hereditary or family tendency to this trouble, yet I saw two sisters die from puerperal eclampsia within eight months of each other. One of them was my own patient and the other was seen in consultation.

All I know of the pathology of puerperal eclampsia has been learned from others. I have never seen an autopsy of one of these cases that I now recall.

As to the cause of death, in most cases that I have seen it seemed to me that death was due to the effect of poison on the nerve centers. I do not believe that the convulsions kill; I do not know why they should any more than convulsions should kill an infant, which they rarely do; or epileptic convulsions kill, which they probably never do unless by accident.

Regarding the symptoms of puerperal eclampsia, there is only one I care to speak of and that is a premonitory symptom. I refer to the neuralgic-like pains often complained of by women who are liable to convulsions.

A few years ago I was called out of bed to relieve a young woman of pain resembling a severe case of intercostal neuralgia. Blindness shortly followed this pain, and convulsions within six hours. This, with other cases I have seen, leads me to say that if you have a pain of this character in a woman who is a possible subject to convulsions—no matter whether it

is in her head or elsewhere—you should be on your guard.

The prognosis of puerperal eclampsia is of course grave. Two of my seven cases died, both primiparae, and both antepartum cases. One did not die from the eclampsia, but from septic peritonitis eight days after forced delivery. In nine cases seen in consultation I think there were four deaths. Three were primiparae and one multipara. Only one death was an antepartum case. Two were postpartum, and in the fourth I think the convulsions came on during labor.

In view of the extremely serious nature of puerperal eclampsia, I believe that prophylaxis should be instituted in every pregnant woman, no matter how satisfactory her condition may be, especially in the latter half of pregnancy. Elimination should receive attention. The bowels and skin should be kept active. The surface should be protected by woollens to guard against sudden chilling and suppression of the functions of the skin. The urine should be frequently examined not only to find if albumin is there, but to get some idea of the amount of solids excreted by getting the specific gravity and quantity.

Attention to the diet is a most important thing. As I have stated before, I believe that many women in the latter months of pregnancy eat too much and take too little exercise. Some of them may think it necessary for them to eat a great deal to give them strength to effect delivery properly.

Assuming that the cause of puerperal eclampsia may be in some way related to the nitrogen compounds, the protein intake should be limited, being mindful of course that the mother must provide for the growing muscles of the fetus. I believe that we should insist on a pregnant woman taking plenty of exercise of a suitable kind. It is better that the food should go to build up her muscles than that its half burned products go to still further increase the burden on the kidneys.

When albumin in the urine shows that the kidneys are becoming more or less damaged, increased activities in the way of prophylaxis are of course indicated. I cannot say, however, that it has seemed to accomplish very much in my hands. In spite of the milk and vegetable diet, the hot baths and doses of salts, the albumin has staid there, and in two cases the women had convulsions and with only little previous warning.

I am becoming more and more convinced that in some cases a prompt termination of pregnancy is the proper treatment, especially if the case is a primipara and the albumin appears suddenly and early in the last half of pregnancy.

When convulsions occur, the proper course

of treatment, and the one I think every doctor would agree to, would be to remove the cause and hasten elimination of the poison accumulated in the woman's body. As pregnancy is primarily responsible for all that follows, separating the woman from her fetus should, theoretically at least, stop the cause. That is, stop the production of the poison.

To remove the fetus quickly before labor is advanced demands a forcible dilation of the cervix, or a hysterotomy either vaginal or abdominal. Forcible dilation, instrumental and manual, until the os would admit of extraction, is the only method of speedy delivery that I have had any experience with. This method has sometimes done very well, but has not always been satisfactory. In case of a primipara with a long thick cervix it may take several hours of the most fatiguing work to dilate sufficiently to do a version, apply the forceps, or even do a craniotomy. I question very much whether a feverish haste to deliver in this class of cases by this method is proper treatment. The pulling and hauling at the cervix, the almost innumerable times that the fingers or hand will be introduced into the vagina on account of the fatigue and necessity of changing hands, with either the Edgar or Harris methods, and finally pulling the fetus out through a half dilated cervix, certainly exposes the woman's life to grave dangers from infection and injury.

If a hysterotomy is not expedient I believe it would be better to dilate the cervix moderately with a steel dilator under aseptic precautions, pack the cervix and perhaps the lower uterine segment with antiseptic gauze, and wait some time before trying to deliver. The length of time, of course, depending upon the further developments in the case.

This may seem like playing with chance, yet delivery does not always stop the convulsions, not suddenly at least. In the sixteen cases I have seen convulsions recurred or came on after delivery in all except three, and as I recall these, two of them had single convulsions only, and the third not more than two or three.

In the sixteen cases we are considering, manual dilation and extraction was done in six cases, five primiparae and one multipara. Three of these women survived; three died, and all the babies succumbed. However, three of them were probably too young to have lived under the best conditions. One of the women who lived was a multipara, and dilation in this case was easy and rapid.

I believe that prompt eliminative treatment is of great importance. The bowels should be unloaded by a dose of croton oil if the patient cannot swallow, and perspiration induced by wrapping the body in blankets wrung out of hot water.

In one of my recoveries, a very plethoric woman, I bled a pint. Four of my own cases and one seen in consultation got one or more quarts of physiological salt solution subcutaneously. One of these cases died. I have usually given remedies to reduce the blood pressure, veratrum viride or nitroglycerin, but there is a question in my mind whether the increased blood pressure is not an effort of nature to aid elimination, and this leads me to say that if we were to take the blood pressure in some of these cases in the latter months of pregnancy, we might learn more of their condition before dangerous symptoms developed. To control the convulsions, chloroform, morphine and chloral can be given.

As I have already stated I do not believe that the convulsions kill. I think that the number and continuance of them shows in a measure the extent of poisoning. I question very much whether the free use of these drugs should be employed. Of course the fits appear to the friends as the most terrible and dangerous feature of the disease, so a reasonable effort to control them should perhaps be made, remembering that the long continued use of chloroform is not without danger, and that the effect of morphine and choral on the already almost paralyzed nerve centers should be carefully watched. Many cases will go from bad to worse in spite of all treatment, and I think that there is a better tendency at present to belittle all forms of treatment that do not have for their object the emptying of the uterus.

I have in mind a case in which convulsions came on twenty-four hours after delivery, when the patient had a perfect storm of them. Croton oil was given when she could yet swallow, and while the oil was in transit she was given a quart of saline solution subcutaneously, which she took no notice of whatever, she seemed so profoundly unconscious. Soon after she suddenly roused up, jumped out of bed, grabbed a chamber and got busy with the oil, fighting like a wild cat to keep off the attendants who thought it their duty to drag her back to bed. She was up several times in the next few hours, and had no more convulsions. My records show that in the next twenty-four hours she passed 128 ounces of urine. Of course how much the croton oil and salt solution had to do with her recovery is hard to say.

Cases respond so differently to treatment, or perhaps I had better say they respond so indifferently to treatment, that it is pretty uncertain as to the value of any particular line of treatment. Probably we all do about everything we can think of when we get a case of this kind.

To conclude briefly, I will say that I do not believe the cause of puerperal eclampsia is much better understood than it was forty years

ago. No doubt the effects of this mysterious cause, whatever it may be, have been more closely observed. What it does to the liver, brain and kidneys is better known, but that is about all. I think the most noteworthy change in ideas has been in regard to treatment. I believe that obstetrical interference is more generally recommended, that is, measures to empty the uterus promptly. Some recommended this procedure a good many years ago, but I think the majority were against it, and some were very strongly opposed to it.

A CONSIDERATION OF SOME PHYSICAL SIGNS IN PULMONARY TUBERCULOSIS.

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In examining a chest it is advisable to have certain definite landmarks fixed in one's mind. We usually locate the boundaries of the patient's right lung anteriorly while he is lying down, posteriorly while he is sitting or standing. The lower boundary, in the para-sternal and mid-clavicular lines, is at the upper edge of the sixth rib, in the axillary line at the eighth to ninth rib, in the scapular line at the tenth rib, in the posterior-median line at the eleventh vertebral spine. The border, therefore, is nearly horizontal. The lower border of the left lung is practically at the same level. Vigorous respiration elevates and depresses the lower border of the lungs several centimeters.

The mobility of the lower lung border is diminished in: I. Pulmonary emphysema; II. Partial consolidation of the lungs; III. Many cases of incipient disease at an apex without any pleuritic adhesions whatever, because a diseased lung in an attempt of nature to keep it quiet does not expand well; and IV. Pleuritic adhesions between the pulmonary and costal pleurae.

The best method for demonstrating the mobility of the lower pulmonary border is to fix, by percussion, the lower boundary while the patient holds his breath at the end of a deep inspiration, mark it on the chest wall and then do the same during forced expiration.

In order to diagnose a free pleura a mobility of at least five centimeters should be found. This should be apparent promptly; otherwise the findings may not be trustworthy, for an adherent pleura may be drawn down during a deep inspiration by adhesions to the diaphragm.

Ordinarily, in quiet breathing and a recumbent posture, the upper border of liver dullness coincides with the lower border of pulmonary resonance and is found at the upper edge of the sixth rib. In the median line the liver dull-

ness lies half way between the liver and the tip of the ensiform cartilage. In the right mamillary line it reaches the edges of the ribs or projects slightly below them.

The bifurcation of the trachea and the division between the upper and lower lobes of the lungs takes place opposite the third dorsal spine or the lower edge of the fourth dorsal vertebra, and Schroeder's field, in which enlarged bronchial glands may sometimes be detected by means of percussion, is a small area of dullness about two or three inches in length along the spine on the left side opposite the bifurcation or a little lower down.

The most prominent spine at the back of the neck is that of the seventh cervical vertebra. Its prominence when the head is bent forwards makes it usually easy to find. Where three vertebral spines are quite prominent in this region, the seventh is usually the middle one. The first lumbar spine can usually be recognized from its being broader than the dorsal spines. Where the seventh cervical spine cannot be positively located in this way, the vertebrae should be counted from the first lumbar upwards.

Only two-thirds of the spleen is percussible, the upper third being covered by lung. In determining splenic dullness one should percuss downwards in the posterior axillary line until dullness is reached, then parallel to the ribs until a good clear tympanitic note is obtained. Normally the splenic dullness is seven centimeters long and five centimeters from the free border of the ribs.

Under the edge of the ribs on the left side is a space bounded above by the lung, below by the free costal margin, on the right by the left lobe of the liver and on the left by the spleen, called Traube's space. This is of considerable importance in the diagnosis of left-sided pleuritic exudates which often entirely obliterate this space. Such a dullness is easily demonstrated and when present is indicative of a left sided pleural effusion. It must be remembered, however, that owing to pleural adhesions left sided exudates do not always encroach upon Traube's space. The fuller the pleural cavity becomes the lower down the fluid reaches, and the more Traube's space tends to become obliterated. The absence of Traube's space is a more valuable sign of effusion than the presence of Grocco's triangle.

Breathing is bronchial only when expiration is louder than inspiration. All others are modified vesicular. The expiration must be louder *more accentuated*. It may also be longer, but the feature of *loudness* of the expiration is the differentiating element. Broncho-vesicular breathing is that in which expiration and inspiration are the same. Bronchial breathing may be loud or otherwise, very distinctly or

very faintly heard, but in order to call breathing bronchial, the expiration must be *louder* than the inspiration.

When you find dullness on light but not on heavy percussion, it shows a thickened pleura, as heavy percussion brings out the tone of the underlying lung.

The percussion note over the back of the thorax may be unlike on both sides because of better development of the muscles on one side than on the other. The posture of the patient in bed may also make a good deal of difference in percussion. Prove your suspicions by auscultation. Of much greater importance is the presence of rales on one side.

PULMONARY RALES.

All rales originate in the bronchi. If the bronchi are surrounded by solid lung and the alveoli are filled with fluid, they are consonating or resonant rales. If surrounded by air they are non-consonating or non-resonant rales. Consonating rales at the apex of the lung are pathognomonic of tuberculosis. If there are but few, they are heard at the end of inspiration. If there are more, they are heard during the entire inspiration. If there are many, they may be heard during both inspiration and expiration. These consonating rales originate in bronchi surrounded by consolidated lung. They may be fine, medium or coarse, but they are always loud. They are high-pitched and are heard close to the ear. Crepitation in atelectasis is heard during both inspiration and expiration, while in pneumonia it is heard only in inspiration. Otherwise the rales are the same, excepting perhaps being a little coarser in atelectasis.

There are three conditions in which fine, moist, non-resonant rales may be heard above the clavicle: I. Incipient tuberculosis: II. In the later stages of an acute bronchitis—the rales in the lower portion of the chest may clear up first and fine rales be found at the apex only for quite a while; III. In influenza. There are cases of influenza which last for months or years with influenza bacilli in the sputum and which do not react to tuberculin in whatever form it may be administered.

You cannot get fine rales at an apex due to pleurisy. There is too little movement at the apex during inspiration to give a pleural rale, and whatever rale you find at an apex above the clavicle is produced in the lung. In fact many authorities believe that all fine or crepitant rales heard in cases of pleurisy are produced in the atelectatic lung under the inflamed pleura and are not due to movement between the pleural surfaces. In the deadhouse, the pleural surfaces at the apex are found adherent and immovable in chronic tuberculous cases.

LOBE LANDMARKS.

While the right lung has three lobes and the left two clinically this difference does not exist. The division between the upper and lower lobes is at the same place in both lungs and begins at a point opposite the third dorsal spine. In the mid axillary line all three lobes are met with on the right side. There is a small part of the lower lobe in front on both sides, but practically the front of the chest is occupied by the upper lobe and the back of the thorax below the fourth dorsal vertebra by the lower lobe.

It is important to remember where the apex of the lower lobe in the back is situated. Osler states that in the upper lobe the primary lesion of tuberculosis is not as a rule at the extreme apex, but from an inch to an inch and a half below the summit of the lung and nearer to the posterior and external surfaces. The lesion here tends to spread downward, probably from inhalation, and this accounts for the circumstance that examination behind, in the supraspinous fossa, frequently gives indications of disease before any evidence exists at the apex in front. Anteriorly this initial focus corresponds to a point just below the center of the clavicle, and the direction of extension in front is along the anterior aspect of the upper lobe along a line running about an inch and a half from the inner ends of the first, second and third interspaces. A second less common site of the primary lesion in the apex "corresponds on the chest wall with the first and second interspaces below the outer third of the clavicle. The extension is downwards so that the outer part of the upper lobe is chiefly involved.

In the involvement of the lower lobe the primary infiltration is about an inch to an inch and a half below the apex, and corresponds on the chest wall to a spot opposite the fifth dorsal spine. This is of the greatest importance clinically, as "in the great majority of cases when the physical signs of disease of the apex of a lung are sufficiently definite to allow of the diagnosis of phthisis being made, the lower lobe is already affected." (Osler.) Examination therefore should be carefully made of the apex of the lower lobe in all suspicious cases. In the situation the lesion spreads downwards and laterally along the line of the interlobular septum, a line which is marked by the vertebral border of the scapula when the hand is placed on the opposite scapula and the elbow raised above the level of the shoulder. Once present in the apex, the disease usually extends in time to the opposite upper lobe; but not, as a rule, until the apex of the lower lobe on the same side has become affected.

Two per cent of all cases of pulmonary tuber-

culosis are in the lower lobe. Ninety-eight per cent are in the upper lobe. In ninety-five per cent. of the cases the disease appears *clinically* in the apex. Tuberculosis of the lower lobe has very different ear marks from an apical tuberculosis. When in the apex, the usual symptoms are present, such as fever, emaciation, etc. while in lower lobe tuberculosis many rales and a good deal of cough and expectoration may be present, but the general condition may be good. There is not so much emaciation. As in pneumonia, the prognosis in an apical or upper lobe case is worse than in pneumonia of the lower lobe, so is the prognosis in tuberculosis of an upper lobe worse than in that of a lower lobe. Tuberculosis of an upper lobe leads to death or healing. In the lower lobe it seldom kills, but almost never recovers. Such patients will always cough. This difference in prognosis may be accounted for by the difference in the lymphatic circulation in different parts of the lung. In tuberculosis of the upper lobes, gravitation assists the toxins in entering the circulation and systemic symptoms are usual. The entire organism is flooded with them and the spleen, liver and other protective glands of the organism are stimulated to the production of antibodies. If they are produced in sufficient quantities, the patient gets better. Otherwise, he dies.

In tuberculosis of the lower lobe, gravitation does not help toxins to enter the circulation and there is usually but little if any secondary toxemia.

When rales are found with the first one or two deep inspirations at an apex, or any where else, and then disappear, you know they may be due to atelectasis. If, however, they reappear again in a minute or two, and show a tendency to permanency, they are due to a catarrhal process and are very suspicious of tuberculosis. Dry or moist rales located at one spot as a rule generally mean tuberculosis, which may be evidenced for a long time by a dry catarrh at the apex.

THE CARDIAC AREA.

The precordial edge of the left lung forms a notch within which the heart lies directly against the thoracic wall. This notch corresponds to the so-called area of superficial cardiac dullness which may be almost or entirely obliterated by a deep inspiration.

Although easier to determine than the relative or deep cardiac dullness the superficial dullness is not always of value in estimating the size of the heart or pericardium. A heart may be enlarged and yet the superficial dullness may not be necessarily increased because of the presence of emphysema or fixation of the edges of the lung in the neighborhood of the heart by pleuritic adhesions. The relative dullness of

the heart is thirteen centimeters in width and fourteen centimeters in length measuring from the highest point in the median line where the relative dullness begins to the apex. Relative dullness indicates the absolute size of the heart. It extends normally to the right edge of the sternum. If it extends beyond, it indicates enlargement of the right ventricle. The relative and absolute dullness at the left side should meet at the apex. The sternum often acts as a pleximeter and on percussion one cannot always tell just where the heart reaches in relation to it. It may come just underneath its left edge or may reach to the right border. If the heart reaches two thirds of the way under the sternum for instance, it will give a duller note throughout its entire width, so one should never try to mark a point on the sternum where the right border of the heart is supposed to reach. One can only say that dullness extends to one or the other edge of the sternum. Of course there may be a difference between the upper and lower end of the sternum on percussion which will assist in making a diagnosis.

During inspiration the pulmonary pressure is changed and in normal hearts one often finds a splitting or reduplication of the second sound at the apex because the pulmonary valves do not close synchronously with the aortic valves. It must not be forgotten that this reduplication is often present in mitral stenosis.

In a tuberculous process at an apex one frequently finds dullness at an early period of the disease, but when this goes on to healing, cicatricial tissue is formed and contraction of the apex takes place with compensatory emphysema about it, so that in a healed process at an apex one often finds a tympanitic note on percussion. A tympanitic or hyper-resonant note, therefore, may be due to either a cavity or emphysema about a healed process. When one finds a tympanitic note at an apex and wishes to differentiate between a cavity and scar tissue with emphysema one must examine Kroenig's isthmus. If this shows a sharply contracted space it speaks for an old healed process in the lung.

In any case of cough and impaired breathing we must differentiate between the shortness of breath that depends upon congenitally small hearts and arteries and that depending upon emphysematous changes in the lungs. In general enteroptosis we may find displacement of the lungs, heart and diaphragm, but enteroptosis of the heart alone may be present without any involvement of other organs. In these cases, the X-Ray shows a much larger space than usual between the heart and the left chest wall. The mediastinal shadow is narrow and the heart smaller. These patients are predisposed by their small hearts to tuberculosis. These cases of congenitally

small hearts often complain for years of shortness of breath and stomach trouble. The heart tones must be sought for lower down than normal. When percussion makes out a small heart in a case of tuberculosis, we cannot always say that the heart is really smaller than normal, for it may be simply turned forwards on its axis. The X-Ray here also is useful.

Rude respiration may be heard normally at the right apex. When heard there it is of but little value and can be used only as a basis for suspicion. It differs so little from the normal respiratory sounds heard on the right side that a diagnosis cannot be made from it alone. Grancher's rude respiration consists of a sharpened inspiration and a prolonged expiration of the bronchovesicular type which is sometimes heard normally on the right side. When heard over the left apex, however, it is a very suspicious sign of incipient tuberculosis.

THE SPUTUM.

A purely tuberculous process never gives rise to a foul smelling sputum. It is true that the sputum of tuberculous patients frequently has a very bad odor, but this is due to decomposition of secretions in cavities. Of course, after standing, sputum may acquire a bad odor from the action of bacteria. Freshly expectorated sputum may have a strongly offensive odor in bronchitis, bronchiectasis, pulmonary gangrene, pulmonary abscess, and in empyema which perforates into the lung. Sputum which separates into layers on standing is seen chiefly in chronic bronchiectasis, chronic bronchitis, putrid bronchitis and gangrene of the lung. In these conditions it is profuse and fluid and separates into three layers; an upper frothy layer, a middle fluid layer, consisting chiefly of purulent serum or mucoid fluid, and a third layer of sediment which consists of pus corpuscles, gangrenous shreds of lung tissue and molecular lung tissue.

VOCAL FREMITUS.

All clinicians are agreed that both vocal fremitus and vocal resonance as well as the percussion sounds are more marked on the right side than on the left. On the right side from the apex to about the level of the second interspace or the third rib, the percussion note is slightly higher in pitch, shorter in duration and less resonant. The actual amount of these variations is never great in degree, but is of extreme clinical importance on account of the frequency with which incipient tuberculosis manifests itself by physical signs at the right apex. If no allowance be made for the normal variation in the two sides of the chest, errors in diagnosis may easily occur.

CAVITIES.

The question whether or not a lung contains a cavity is often of considerable importance especially from the stand-point of prognosis. Small cavities or fairly large ones which are sharply defined frequently give a favorable prognosis, while communicating cavities or single cavities, especially if recent and with active constitutional symptoms, give a bad prognosis. It has long been said that once formed a cavity can never be obliterated and Osler states that cavities of any size can never completely heal. In view of recent experiences in the treatment of pulmonary tuberculosis by artificial pneumothorax in which cavities have completely healed and been replaced by scar tissue, such statements will have to be somewhat modified in the future.

In any case, however, the prognosis should be guarded, owing to the possibility of a sudden and fatal hemorrhage.

Cavities are present in the great majority of chronic cases and it has been stated that every case develops some evidences of excavation, howsoever small. Of seventy-eight cases which Flint analyzed, sixty-two showed cavities. Of fifty-three cases examined at the Phipps Institute fifty had well-marked cavities. As they are the final stage in the tuberculous process they are usually found where the disease first appeared, and in fifty cases examined at the Phipps Institute there was no instance of a primary cavity at the base. Cavities at the base, however, associated with disease at the apex are not uncommon, particularly when the disease is advancing rapidly.

It is frequently stated that a cavity must have attained the size of an English walnut before it will give signs sufficient for its recognition and if the usual signs such as cavernous or amphoric breathing, whispering pectoriloquy, vocal resonance, etc. are depended upon, this may be the case. The experience of Neumann and Stoerk of Vienna, however, show that a musical resonant, or musical consonating, rale is always indicative of a cavity, usually of small size.

Fresh cavities are lined by an irregular membrane and give a musical resonant rale, while large, smooth walled cavities give metallic rales or metallic breathing which is much better heard with the naked ear than with a stethoscope. This metallic breathing is hard to describe. It is of a very dry rasping quality, a sharply accentuated bronchial breathing.

Rales from a fresh cavity are more sibilant, finer, higher-pitched and closer to the ear than the consonanting rales of consolidation. They sound somewhat like the burning of fat close to the ear and are sometimes the only physical sign of a cavity to be found.

Metz Building.

THE PHYSICIAN'S SERVICE TO THE PUBLIC.

DR. G. W. MOORE,

MUNGER, MICH.

(President's Annual Address)

It is gratifying to note that the medical profession continues energetic in the application of the altruistic principles for which it stands; that it maintains advanced positions in the fight for better things and conditions.

Further, it is confirmatory of the trend of our influence, that no great movement looking toward the betterment of the race giving any degree of promise of success is without the energizing help of one or more of the members of our profession.

Illustrative of this is the fact that the National Conference on Race Betterment that convened, in Battle Creek on January 8-12, and composed of men and women of the greatest prominence in the United States, had for its president Dr. Steven Smith. To review the long list of officials and speakers chosen for this conference, and note their worth and prominence, will enable us to appreciate the honor done us in selecting a physician as leader.

But a few years ago the physician's voice had but little weight upon any subject affecting public interest. Men of prominence in the profession later began doing spectacular things, such a cleaning up the dirty Central American conditions, and making the Canal possible, and Dr. Wiley's noble stand for purity and efficiency, have made a strong impression upon the popular mind as touching the importance of the physician's usefulness to the public. Yet I want to call attention to the fact not so plainly thrown upon the curtain, that the rank and file of the physicians of the land, have, through the strength derived from organization, and from the consciousness of a noble mission in life's activities, exerted a steady and resistless influence commanding public attention and respect. But a few decades ago it was almost impossible to secure legislation for measures affecting the public health, because of a suspicion that some member or members of the medical fraternity were behind it for selfish purposes; or, that it might interfere with the standing of some school or cult. These things are not yet entirely eliminated, but are giving away before the pressure exerted by an organized profession. And as a result there will surely be a National Health Department in spite of Christian Science, "Osteo," and other "Pathies." The wheels of progress which are actuated by the medical body are driving to that end, at which time, solely as a result of the perseverance of our profession, babies, chil-

dren and adults will be accorded the belated government care which selfish money interests secured for pigs and calves thirty years ago.

EUGENICS.

It would be presumptuous to ask your attention for anything like a full review of the subject of eugenics. I will, however, speak upon it briefly, for it appears to me as strongly indicative of the spirit of the times, looking toward the betterment of mankind.

Thoughtful consideration of the present day literature upon the subject makes obvious the fact that among those who have the best interest of the matter at heart, there exists too much diversity of opinion as to working methods to accomplish anything like hoped for results. Many advocate very free teaching of school children on the subjects of sex and heredity. Others, more cautious and perhaps more far-seeing, advise moderation in this teaching for fear of too strong suggestion to particularly susceptible minded children.

A large group of ministers, 3500 in number, and representing 50 ministerial associations, have accepted the leading of Dean Summer who served a year on the Chicago Vice-Commission and are requiring a certificate of good health before performing the marriage ceremony. Others are joining this movement as time passes. These men are not deluding themselves into the belief that refusing to marry unfit persons will prevent the said unfit persons being married. Yet they have faith that their attitude will radiate its influence for the improvement of the conditions which they and we would see remedied.

The Duhamel bill of the state of New York provided that health certificates should be furnished before the marriage could be legally performed. Opinion as to the practicability of the latter measure are so varied as to approach chaos. The Rev. Henry Wood writing in the publication *America* condemns both the action of the 3500 ministers, and the provisions of the bill. He asserts that in either case "the fundamental principles of human liberty are violated," and, further "that constitutional weakness in children is no impediment, and very often a very profitable means of attaining to the everlasting glory."

The want of unity herein portrayed can have but imperfect results. And it will seem to follow that the medical profession can, working in harmony, evolve a practical plan whereby children may be taught that fully and only which they can absorb with benefit to their years, their future and their posterity.

Dr. Eliot, late of Harvard, has predicted: "that the time will come when education will

be in the hands of the medical profession," emphasizing the truth that the human problem is the greatest subject in modern education.

ORTHOGENICS.

Heredity and environment are the forces that educators must study more, and study is needed of the special requirements of each delinquent and defective child. Orthogenics, or the science of correcting mental and physical defects whether or not of equal importance with eugenics should at least receive equal study and attention. It is well to work in the interest of posterity, but those who live with us need our care. Logically the direction of this work belongs to the medical profession—more, that the medical profession must direct the work or it will remain but little advanced, as a testimony to our negligence. Investigation of the standing of the school children in 31 cities in the United States revealed that one-third of the total were backward. Examination into and scientific classification of the mentality of these children should receive, it would seem, medical care. But imperfect education results can be had when normal and abnormal minded children are members of the same classes on a competitive basis. It is well known that the presence of adenoids or defective vision will contribute to delinquency, and examination for and correction of these evils should be continued and even extended; but having done this, the work is only well begun. A sad percentage of children are deficient or defective from birth, by reason of either the known or unknown causes of abnormality, and the work before the profession in this field leads us far into more observant and subtle depths than merely testing the vision range and feeling with the finger for adenoids.

School teachers are as a class hard working and conscientious, but can it be expected that they qualify to analyze the degree of normality of each member of their large and varying classes?

A strong movement has recently been instituted by articles in several magazines written by Dr. Josephine Baker, Director of Child Hygiene in the N. Y. Health Department, Dr. Denmet and others, interesting parents in the fact that the traditional slipshod methods of feeding and caring for babies is not the best either for the children or the parents; that better results are had and lives saved by learning the simple and correct thing to do. These articles of course reach but a small percentage of the people, obviously those who read this class of literature, but each mother interested is a focus for the radiation of interest in the matter.

Dr. Baker's work as director of child hygiene in the great city of New York is simply stupendous, and with 630 trained nurses at her

command, a great amount of help and instruction is being given the mothers among the poorer classes.

The difficulty encountered there, is, as every physician has experienced, not so much that mothers are merely ignorant of correct methods of care, as it is to eliminate the teachings of tradition and the example of home errors.

However, in spite of these difficulties the work of teaching the better care and feeding of babies must go on, and every physician should leave the impress of his individual instruction in every home to which he is called. Often this seems a thankless task but like other good effort, it will bear results. In fact it would seem that better conditions in general living methods should follow in the wake of every physician, and this obtaining no man can justly be called a failure.

THE SOCIAL EVIL.

It is not my purpose tonight to attempt to present to you an address upon the "social evil" but to touch upon it; distinctly to indicate the degree of progress which is being made upon it by that public mind, which, having freed itself from dogmatism is earnestly seeking a solution, based upon the facts as they exist.

Early in the summer I collected and reviewed investigator's reports and other data, together with published opinions of competent observers, with a view to the preparation of this part of my address. Later, and while in Edinburgh, I, in company with Drs. Gustin, Baird, and Tupper, listened to an address by Dr. Wood Hutchinson upon this subject. I found that he had made use of and quoted freely from some of the reports and records, which I had gathered for use at this time. In a masterly oration he presented deductions showing that new hope has been instilled into those who have the reasonable solutions of the problem at heart, by the fact that new light has dawned upon its causation.

Scientific tests have shown that of a sufficient number of prostitutes to maintain the law of averages, that from 50 to 80 per cent. exhibit one or more of the stigmata of degeneration. And this of a type, proving that instead of the defect being of such nature as to incline them to adopt this mode of life, they are thereby rendered unfit and unable to do work in the world's activities in competition with normally balanced and constituted females. . .

It was found too that in a large per cent. of cases that the prostitutes were unable to perform consecutively simple movements of the hands required of girls in industrial employment. And that this defect in co-ordination of muscular action was of such degree as would cause them to be failures in competition

with normal woman. Close inquiry into their history often confirmed these findings.

It has been found, further, that they were but seldom actuated by abnormal sexual desires in choosing this life, but on the contrary were apathetic in this regard. So that it is evident the difficulty is not so much how to get them to change their way of living as to discover some way by which they can earn their living in a regular and honest manner. They are, in short, imperfectly developed and co-ordinated human beings, and hence it follows that the rational solution of the problem which they present logically devolves upon the medical profession. Further, it seems to me equally logical that isolated and few workers cannot accomplish the whole work. That the thoughtful interest of the whole upper stratum of society is needed to inspire and support those who are making the question a special work and study. When it has become obvious to all that its continuance under our present various systems of ineffective control is absolutely poor business procedure, a good basis will have been established on which to build practical work. Unorganized efforts of either individuals or societies cannot accomplish the work. It must have united effort and purpose. The medical profession as it stands today is able to powerfully influence public opinion, looking toward the betterment of the conditions of the unfortunates who have gravitated from a state of incompetency to that of depravity or criminality. The question presents aspects both economic and medical. Both economists and physicians have in the past evaded their duty. The politician has usurped the field and to his disgraceful profit. The politician should be eliminated, the economist should deal with the facts of the wasteful cost of the existence of the evil, and the care and employment of the unfortunate defectives who have become its victims; the physician should be a strong guiding influence in the recognition and care of these defectives, instructing as to their possibilities for usefulness. Professor Crum Brown in addressing an audience enunciated this truth: "We recognize that in the weakest there is a potentiality of strength, in the worst there is a potentiality of good, and it is our business to see that nothing is lost that we can help to save."

Professor Brown's view of our civilization is commanding and embodies the need of our help. When the physician's life work was bounded by the outlines of physical pain and injury, his limitations were indeed narrow. His broader work is to benefit the human race; to advise and teach unto better conditions, operative for the development of better physical human life; to promote that evolution of the human mechanism unto one stronger to react to its normal and abnormal environment, more

potent to resist the under mining influences of the defective contents inherent in its component heritage. He is willing that the sufferers from body defects should demonstrate the superior inclination to religious attainment, but refuses to be satisfied with any thing less than our best effort being put forth to radically change for the better their present conditions.

Our views are out reaching; the social evil question is becoming to be seen as being a much broader one than it was formerly thought to be. In the dawning perspective it is seen not to be the entity it formerly seemed, but involves other strata and classes in the social scheme. The competitive unfit in the female becomes a prostitute. The male who by reason of his mental and physical unstability less than insanity and imbecility cannot maintain his place in the human line, becomes the hobo, the burglar, the habitual criminal.

To allow either to unrestrainedly demonstrate their ability to react to the social scheme is clearly illogical, expensive, and in total, a failure. Punishment after their demonstration is made but slightly serves for good, and is equally illogical. And more than being a near failure, it acts as a two edged sword, brutalizing in some degree those who administer it. Reference to authentic reports on prison scandals in our own state will confirm this statement. No Utopian plan is likely to be made operative whereby all these evils will be entirely removed, but much ought to be accomplished by intelligent concerted action, based upon our broader view of the situation.

My ideals may be far fetched but I have an abiding faith that it will eventually be by the influence of the medical profession of the world that the brutal crime of war will be abolished; that its memory will become to us more horrible than that of the private war of dueling, which like Saul "only slew its thousands." A more or less distinct history of the world for somewhere between six and seven thousand years proves that the politicians or money interests promote and that the clergy fail to prevent it. Indeed many pulpits have belched forth the red-hot lava of the war spirit.

For centuries medical men have presented a grotesque picture on the battle-field; as the machinery of war plied its mutilating work doctors go unto the very teeth of danger to remedy as they may, what is being scientifically done to destroy body and life. Wilhelm Lamzus, of Germany, is one of the first writers with the courage to depict war as it is, and strip it of the false garment of glory in which historians from the inception of record both legendary and written have sought to clothe it. Writers of power have found it easier to imitate their predecessors and make of their battle account an epic, being sure of winning royal

favor and applause. Lamzus' iconoclastic book brought down upon his head the wrath of the German Emperor who promptly proscribed it. This action, however, is a pretty sure way of making a book popular, and already it is being widely read. Its attitude is that which we as a body should assume. The loss of property has often been described, but there is a winning as well as a losing side and the gamble goes merrily on. But the medical world should demand that the human body, which we devote our lives to the preservation of, be not made the target of deadly war.

I wish at this time to express my appreciation of the many courtesies which have been extended to me during the past year. Indicative of the kindly attitude of the members of our society has been the absence of criticism of error in technic in the administration of this office; to any possible one who may have been an exception to this general rule, I will say that fault finding was hardly needed for an error was no sooner made than recognized and regretted by myself, being not so much the result of ignorance of parliamentary usage, as having grown out of touch with its practice. And I have not only benefited by the experience of this office during the past year but I have also acquired the mental attitude of leniency toward others whom I have seen to be also imperfect in assembly.

By giving credit where it properly belongs, to the work of the secretary and committees and the response of the members, I can safely make reference to the fact that the past year has been one of the thoroughly good years in the history of the society. Indeed, I estimate that it will be remembered as among the best.

My best wishes go with my successor in office for an ensuing year which will, if possible, excel this which is just ended.

And it may be that fate will give me life and leave to row once more—

Set some strong man free for fighting as I take awhile his oar,

But today I leave the galley. Shall I curse her service then?

God be thanked—what's to come after, I have lived and toiled with Men.

THE USE OF BACTERIAL VACCINES IN GENERAL PRACTICE.*

C. T. PANKHURST, M.D.

NORTH STAR, MICH.

The use of vaccines in their therapeutic application for the prevention and treatment of disease, is a very extensive and complicated study, and I shall be able to treat on the subject only briefly today.

*Read before the Gratiot County Medical Society.

Immunity to disease may be either naturally acquired or artificially induced. Every person is to some extent immune to certain diseases. This immunity varies in different people, and for different diseases, and varies in the same person from time to time. You have all observed that in some epidemics some people will be exposed to an infection time and again and they will escape. This is natural immunity. This immunity may already be possessed by the individual; or, in the case of certain diseases, such as typhoid fever, small-pox, and some others, the patient acquires this immunity by having an attack of the disease that renders him immune from subsequent attacks for a certain length of time.

This phenomena has been observed almost from the beginning of the practice of medicine, but it has only been within the last twenty years that there has been any explanation of this phenomena forthcoming.

Towards the close of the 19th century, Pasteur's discovery of bacteria began to show us what disease really was—an invasion of the body by some form of bacteria.

Next the problem was to find out how the system resisted the entrance of these organisms into the body, and how the system destroyed and rid itself of the bacteria once they had gained entrance to the body. In other words, the question to settle was what protective mechanism does the body possess to guard it against and to destroy disease.

A study of the blood soon showed that the protective substances of the body were here located, and then it was a question whether this protective substance was in the corpuscular part or the liquid or the serum part of the blood.

There were two theories advanced. Ehrlich and his followers contended that the protective substances were in the body tissues or the serum part of the blood, while Metchnikoff and his adherents claimed the resisting powers of the body lay in the phagocytic action of the leucocytes.

In 1895, Denys and Leclef called attention to the role played in blood serum in phagocytosis. They showed that by immunizing an animal against a certain micro-organism there was no change in the behavior of the leucocytes in themselves, but they found that in the blood of the animal so immunized there were certain substances which acted upon the microbes in such a way as to permit of their being ingested by the leucocytes. In other words, the immunity is due to a developed function of the serum and not to any change in the leucocytes themselves.

It was later shown that the action of the serum consisted not in a stimulation of the leucocytes, but in an actual combination with

the bacteria which thus prepared them for phagocytosis.

Somewhat later, Leishman, in an endeavor to determine the degree of immunity acquired to the course of certain infections, devised a method whereby mixing equal volumes of the bacterial suspension and serum from the individual whose resistance was to be tested, then taking a drop of this mixture on a glass slide and incubating it for fifteen minutes, then staining the preparation and counting the intracellular bacteria. By so doing he was able to show a parallelism between the intensity of the phagocytosis and the resisting powers of the body. But, the true significance of his observations escaped him because he considered his results as confirming the "Steinheil theory" of Metchnikoff.

Wright and Douglas, in their researches, confirmed Leishman's work, but they modified his technic. By separating the bacteria, cells, and plasma they were able, by suitable combinations of these three elements, to inquire into the relative importance of each separate component in the general reaction. By using a solution of citrate of soda they were able to prevent coagulation of the blood, thus permitting a rapid separation of the corpuscles. Then these corpuscles are centrifuged and washed and centrifuged again. Then, by using an equal volume of the washed corpuscles, bacterial emulsion and serum from the individual, and incubating on a glass slide for five to fifteen minutes; fixing and staining the preparation, counting the intracellular bacteria, and compare this count to one made with normal serum, or with "pool serum," that is serum from a number of normal people, you have a comparison of the persons phagocytic count as compared to the phagocytic count of a normal person. This was called the opsonic index, and these substances contained in the human serum Wright called "opsonins." The word was taken from the Greek word "*opcoro*"—I prepare for food.

So at last we have come to believe that the principal protective and defensive mechanism of the body lies in the action upon the bacteria of the opsonins or antitoxines or antibodies of the blood-plasma.

This action upon the bacteria, by the opsonins, is thought to be in the nature of a ferment action. According to some of the latest investigations bacteria are thought to be composed of two parts; a central or nuclear portion and an external or cortical portion, and this cortical portion is in the nature of a peptone or mucin substance, and the action of the opsonins is to combine with and digest away this outer coating, so that the leucocytes can take them up and finish the process of destruction.

VACCINES.

It is for the purpose of stimulating the body to elaborate more of these opsonins that we use the various vaccines or bacterial products.

The name "Vaccine" has been loosely applied to several bacterial preparations, such as bacterins, serums, antitoxines, phylacogens and sero-bacterins. A true vaccine, in the present acceptance of the term, means a bacterial emulsion, either sterilized by heat or phenol, or it may contain the living attenuated organisms.

Some of the more bold and venturesome of the profession have been using the living germs and are claiming even better results with these than with the killed organisms.

A serum is obtained, as you all know, by immunizing some animal and then drawing off the blood and separating the serum. With a serum you produce a passive immunity by injecting the antibodies into the patient with the serum, while in the case of the vaccines the system is encouraged to form these substances for itself. A bacterine is only another name for a vaccine.

Phylacogens are made by growing the bacterial cultures and then filtering off the germs and only using the "juice" of the "bugs" as it were.

Antitoxines are made by immunizing an animal with some bacterial toxine and then taking the serum which contains the antitoxines of this particular germ. Antitoxins act by neutralizing the toxins of the disease. The action is similar to the action of an alkali upon an acid.

Sero-bacterins are the newest preparations out, and are claimed to be a saturation of the bacterial emulsion with opsonins from serum of an immunized animal that has been treated with the same germ that you are dealing with.

It has been shown that when you inject a vaccine, for the first few hours the opsonins in the blood decrease in amount, due to the fact that some of the opsonins of the blood combine with the bacteria of the vaccine, and it is to prevent this primary lessening of opsonins that this new form of a serum and vaccine are used. The manufacturers claim that with this combination you get little or no local or constitutional reaction, and that the dose can be used much larger and repeated more frequently than with an ordinary vaccine. If such proves to be the case this seems like the ideal preparation we have been looking for. The only objections I can raise to it is the cost, which is \$1.50 and upwards, according to the dose used, and the added length of time required to make the serum. In the case of some acute lesion an autogenous preparation of this kind would be out of the question.

Vaccines are either stock vaccines, that is a vaccine made by combining several strains of

the same organisms from several different people, or they are autogenous, that is you make the vaccine from the predominating micro-organism that is infecting your patient.

If you are equipped to determine the opsonic index you can frequently tell what germ you are dealing with by taking the index of the patient for each germ in the case until the right one is found, and make the vaccine from this. There is one objection to this method, you frequently have a mixed infection and your patient will not respond well under treatment until you use a vaccine containing all the germs infecting that particular case.

Most stock vaccines are mixed vaccines having three to five or more of the germs most commonly met with in that part of the body where the infection is located that you are going to treat. Take for instance if you were going to treat an infection of the mouth or throat, you would expect to find some of the following germs present: the micrococcus catarrhalis, pneumococcus, Friedlander's bacillus, streptococcus, staphylococcus, influenza bacillus, etc. In the tonsil we frequently find the streptococcus hemolyticus, streptococcus viridans, and at times the tubercle bacillus.

In diseases about the colon or rectum you find some of colon family; micrococcus catarrhalis, cocci, and the pus forming germs.

On the skin most commonly are found the staphylococci and acne bacilli. A great many of the cases of boils and carbuncles and abscesses are due to the pus cocci. Erysipelas, Ludwig's Angina, many of the rapidly fulminating infections and septicemia scarlatina, and often in puerperal sepsis and pelvic cellulitis we have the streptococcus to deal with.

Where you have a rapidly spreading infection with a great deal of pain and a severely sick patient, you can be pretty sure you have a streptococcus to deal with; and just a word here about serums—if you have such a case on hand give a big dose of antistreptococcic serum, and you stand a good chance to save your patient, but you surely will have a slim chance if you wait for a vaccine to act.

THE ACTION OF SERUM.

A serum begins to form a passive immunity as soon as it reaches the blood, while a vaccine does not help your patient any for a week or ten days, or until the system can elaborate opsonins to take care of the infection. Therefore in acute cases if you wish a quick action you should use a serum.

In a case of pustular acne you must probably have a combination of the acne bacillus and the pus cocci. In chronic bronchitis we find pneumococci, micrococcus catarrhalis, streptococci, etc. In leucorrhoea and gleet, and inflammations of the genital organs we find the gonococcus,

tubercle bacillus, colon bacillus, and the pus cocci. So you see, by studying your cases, you are able to guess with a fair degree of accuracy just what micro-organism you are dealing with, and then if you are using stock vaccines you can test out a dose or two and see how your patient reacts. If you get no reaction you have used the wrong vaccine, or have used too small a dose. The surest way is to use a reliable mixed vaccine. While you may give some organisms that are not concerned in the infection, they cause no ill effects and do not influence the action of the germs concerned in the disease you are treating.

I have, at times, seen some secondary infection clear up while treating the primary infection with a mixed vaccine.

I have been using vaccines for about four years, and I graduated successively from single vaccines to mixed vaccines, and from mixed vaccines to autogenous vaccines, and now am quite positive of my diagnosis when I use a vaccine with but a single germ, and I only use stock vaccines in case I am in a hurry to start a patient on treatment. I only use the stock vaccine until I can have an autogenous vaccine made.

It is only rational to think that when several different strains of the same germ, from several different individuals, vary widely in their virulence and general behavior, that we would get better results by taking a culture of the organisms, that are infecting our patient and making the vaccine from this, rather than use a vaccine from some member of the same family to which this organism belongs.

Some organisms under different conditions of nutrition, temperature, etc., show entirely different characteristics. Paynton and Payne have been able, by using the pneumococcus to start with to produce a germ they called streptococcus hemolyticus, and with this germ they caused multiple arthritis in dogs. Then by altering the conditions a little they produced the streptococcus viridans, and with this germ they caused endocarditis in animals. Thus going to show that presumptive evidence is quite strong that these three diseases, pneumonia, arthritis and endocarditis, are caused by the same germ having slightly different characteristics.

It is thought that rheumatism and chorea are closely related. Perhaps the same germ under different conditions causes the two diseases. The same may be said about the resemblance of the tubercular bacillus, spirochete of syphilis and the bacillus of leprosy.

AUTOGENOUS VACCINES.

You all know the method of preparing a vaccine. Some of the secretions from your patient are taken and planted in various culture media, and also examined under the mi-

croscope to ascertain what germ or germs you are dealing with. Then you make a transplant onto a nutrient agar slant, and when a rich growth has taken place this is washed off with normal salt solution, and some of the bacterial mixture is mixed with an equal volume of blood and the red cells are counted, and also the bacteria in the same field, and these are compared, estimating 5,000,000 reds per cubic millimeter, and you have a simple problem to tell the number of bacteria per c.m., and also in a cubic centimeter; then the dilution is made so that the average initial dose will be one c.c. or some fraction thereof. Different manufacturers advise different sized doses. The average initial dose for the following more commonly used vaccines is as follows:

Influenza bacillus	.....	50,000,000
Staphylococcus, aureus	..	200,000,000
Staphylococcus, albus	..	200,000,000
Staphylococcus, citreus	..	200,000,000
Streptococci	.....	20,000,000
Pneumococcus	.....	5,000,000
Micrococcus catarrhalis	..	50,000,000
Acne bacillus	.....	50,000,000
Colon bacillus	.....	50,000,000
Gonococcus	.....	50,000,000

The matter of dosage is perhaps the hardest part of vaccine therapy to master. To know just how much of a dose to use, and just when to repeat the dose is to be determined for each case. The more I use vaccines the more I am impressed with their peculiarities.

DOSAGE.

The opsonic index, as a guide to dosage, has many disadvantages and uncertainties about it, and it requires a great deal of skill to use it so that its practical value for ordinary practitioners is almost nil. But there are simple rules to go by that we can safely employ, and can use vaccines with very good success in many lines of work.

There are many conditions that influence the size of the dose to be employed. The extent of the infection is a very important one. I find that in extensive infections it is best to give a small dose to start with, and increase the dose more gradually. Infections in vital structures, such as the eye, ear, etc., you would be more cautious with than when treating a case of boils.

Auto-inoculation plays a prominent part in determining the dose. There is a certain amount of auto-inoculation in most cases, and this is an immeasurable quantity to deal with. You have no way of estimating how much vaccine is being carried into the system from the source of infection. Then, when you start using vaccines most users employ some method to increase the circulation of blood through the parts affected in order that there may be more opsonins brought to the infected area, and this

procedure also carries more of the auto-inoculable material into the circulation, and in this way you may get an over dose of vaccine. Strong, robust individuals can stand relatively larger doses than weak and poorly nourished individuals. An overdose in such a person may break down the last bulwark of defense the patient has, and allow the infection to get a start you cannot overcome. Chronic cases stand relatively larger doses than acute cases do. In acute cases the rule is to employ smaller doses and to repeat the dose every two or three days. The best rule is to start with a small dose, say five million of the more active, and twenty to fifty million of the less virulent micro-organisms, and repeat this dose only when the last dose has begun to wear off, say three to four days, then five to ten days later on. The dose should be repeated before the disease begins to gain headway again, showing that your first dose has worn off. Do not increase the dose until the dose you are using fails to show any improvement in your case.

When you start a chronic case you can give the first dose and repeat in three to four days with a second one, and the third in about five days, and so on up to six or seven days, and gradually increase the dose a few drops at a time until you get some constitutional and local reaction, then go more carefully. I violated these sacred laws in some cases, and always regretted it afterwards. Your object in using the vaccine is to help nature fight a battle against some infection, but if you use too large doses, or repeat too often you lower your patient's resistance, and allow the disease to gain headway, and thus do more harm than you do good.

It is a good thing to get some local reaction at the seat of infection, that is what you want, but you do not want a marked constitutional reaction or local reaction at the point of injection. The ideal way is to carry your patient along gradually to a permanent cure of his disease with the least possible amount of discomfort and risk to him.

Vaccines should be injected subcutaneously in any convenient part of the body where there is a good blood supply. In the interscapular region of the back or on the outer aspect of the arm at the insertion of the deltoid muscle. A place should be chosen where the soreness and swelling, if there should be any, will cause your patient the least inconvenience. In making the injection care should be taken to avoid injecting the vaccine into a vein, because such an accident might cause a profound toxemia. A subcutaneous injection is absorbed more gradually than one given intramuscularly, and furthermore if you had a dose that would be proper for subcutaneous use, if this dose were given intramuscularly you would get a rapid

absorption and might get a harmful reaction.

The more I use vaccines the less dosage I employ. I think we are liable to pay too little attention to the fine points of the administration of vaccines and are liable to use them like we use our medicines, that is, give the average doses recommended and not study our cases carefully to determine the various conditions that may influence the dosage in each case.

The man who is successful in the use of vaccines is the man who pays strict attention to all the little details of the work.

PERSONAL EXPERIENCES.

I have used vaccines in that treatment of the following diseased conditions:

- Subacute Pneumonia.
- Chronic Bronchitis.
- Chronic Nasopharyngitis.
- Chronic Tonsillitis.
- Pulmonary Tuberculosis.
- Abscesses.
- Boils.
- Acne—Simple and Pustular.
- Otitis Media.
- Pyorrhea alveolaris.
- Gleet.
- Cystitis.
- Endometritis.
- Ulceration of Rectum and Colon.
- Puerperal infection.
- Gonorrhea arthritis.

Some of the more enthusiastic users of vaccines will tell you they are useful in almost all the acute and chronic cases of germ infection. Such has not been my experience. I find that chronic diseases are more amenable to treatment than acute cases, and that certain forms of infections respond readily and some very slowly or not at all to treatment, and some people are at too low a state of vitality for their system to respond to the production of opsonins.

There is one thing we must always bear in mind when using vaccines, and that is to make the circulation of blood as active through the infected area as possible so there will be as many opsonins carried to the point of infection as possible.

I find that staphylococci, colon bacillus, influenza bacillus and "catarrh coccus" infections respond well to treatment, but the pneumococcus, gonococcus and acne bacillus are much harder to kill out, and the streptococcus is among the hardest of all to eradicate. I have used a serum in acute streptococcus infections with good results, but chronic infections with this germ are very different to clear up.

I think that vaccines like the various other methods used in the treatment of diseases are all right when thoroughly understood and are

properly used. We have come to know that one of the easiest, quickest and safest ways out of a sharp attack of appendicitis is to turn the case over to the surgeon, and we will come, in time, to know that when we have a case of chronic bronchitis that instead of sending the case to Florida or Bermuda, and dosing them all the time, the best thing to do will be to have an autogenous vaccine made for them.

THE DOCTOR AND HIS SUCCESS.*

LEWIS S. RAMSDELL, M.D.
MANISTEE, MICH.

It has often been the subject of my thoughts to take an inventory, so to speak of the position in society of the physician. To consider the mental attitude of people in general toward the medical man and to place myself, if possible, not only in the position of the patient, but also in the position of the prospective patient, and I say prospective patient with emphasis, because everyone, no matter how well and vigorous, while he may brag of his good health, in his sober moments feels in his heart that the time will come when he will require the services of a doctor just the same as he will require the services of an undertaker. This little inventory has led me to come to certain conclusions, and perhaps given me a bird's-eye view of the principles involved in the practice of medicine that I was not taught in college, and if I am right in my deductions, I will know it when I have finished my career; if I am wrong I will know it and I hope that if my declining years bring failure, and by this I do not mean financial failure, that I may be still broad enough to realize that this failure is due to the application of my principles evolved from these deductions rather than through the fault of the people to appreciate my ability or the profession to stand with me.

There are two sides to our lives—the sentimental and the practical. It is impossible for any of us to divide them equally or I might better say in the proper proportion and make them give us the proper balance, hence there is always a predominating evidence of one side to our make up. Some of us have a tendency to over estimate the practical side and others are given to over balance on the sentimental side. Perhaps, if we were sufficiently self-centered, we would cultivate the proper control and by study of ourselves make in a way a suitable relation between the purely sentimental and practical natures but if we are so self-centered this very condition would lead us to an improper balance toward the practical side.

Sentimentality and the finer qualities that

go to make up the softer side of our dispositions are spontaneous and spontaneity can not be cultivated.

A gentleman is a gentleman born and his actions which prove this are spontaneous. To be sure he can cultivate manners, he can even cultivate such a nicety of manners that he may almost deceive himself into thinking that he is a gentleman but the proper stimulus will bring out his true nature. Some time it will take a shipwreck or a theatre fire to prove this but the fact is there and there is no business or profession in the world that provides such a constant test of this quality as that of the medical profession.

You will doubtless say that a man may be a good diagnostician and be a cad. He may be a good surgeon or internist and be a fish. He may be a good collector and financier and be a success from his point of view and I will grant this. I will also grant that every one present is an excellent physician or at least we all think that we are excellent physicians or we would not be honest in continuing in our vocation and dishonesty is something we all abhor. This being true, why are some of us more successful than others? I do not mean financially, nor do I mean in the treatment of diseases, but true success, the success that gives us force in the community, and makes us mellow as time progresses leaving, when our time comes, a place that can be filled only in part. I have already granted that we are all excellent physicians, if anyone present is not, this paper is not for his ears. The practical side of our nature teaches us to be good diagnosticians, internists, surgeons, or whatever branch of the profession we see ourselves more adapted to. And yet some of us have more patients, some of us have more friends, some of us command more respect than others and as a result are more of a credit to the profession.

The diagnostician who is a cad will have the patients, minus the respect and friendship just so long as there is no other physician in the community who is as good a diagnostician and a gentleman. Than he will be a good diagnostician with the patients. The surgeon who is a fish will have the surgery in a community just so long as there is no other surgeon that is not a fish and then he will be a surgeon minus the patients and friends.

This teaches us that the successful doctor is not, as a rule, the purely practical man without the finer instincts, providing he has competition and success can not be measured without a competitor. Cultivation of the finer instincts will help but the results will not hold up against the competitor who has the instincts of a gentleman; I say competitor, as we are all competitors as well as colleagues.

The man who gives his diagnosis of a tuber-

*Read before the Manistee County Medical Society, Jan. 26, 1914.

culosis to a patient in an unkind flippant or gruff manner hurts his patient; he may break her heart or shatter her nervous system in a word. He has demonstrated his ability as a diagnostician, but, he has not demonstrated that he has any feeling or finer instincts, in other words he has not comported himself as a gentleman in her eyes, and she would have about as much love and less respect for him than for the judge who pronounces the death sentence. She might respect his ability but the other fellow with equal or even less ability, and the instincts of a gentleman will be the one that will take care of her during her last hours.

Immorality and the graver offenses to society are not considered in this paper, they mean failure in any business. I am granting that we are all excellent physicians, all moral, good citizens. With all of these some of us are more successful than others and the conclusions I have come to are: that the sentimental finer sensibilities in us are what make the variations in our degrees of success, and while these qualities are fundamentally instinct and born in us and can never be completely controlled by cultivation, they are nevertheless the foundation of success and, while cultivation may help, it will not cure. But let us try and if it is not in us it will help our children and theirs. They say that in four generations we can make a gentleman.

Clinical Case Reports

INTUSSUSCEPTION CAUSED BY MECKEL'S DIVERTICULUM.

(Report of two cases.)

DOCTORS ANGUS McLEAN AND C. D. BROOKS.
DETROIT, MICH.

Meckel's diverticulum, the remains of the vitello-intestinal duct is a process or diverticulum springing from the lower part of the ileum from one to three feet from the termination the ileum. It is found in two per cent. of the cases examined. It is usually a diverticulum or cord a few centimeters long but it may extend to the umbilicus as a cord or a duct which may give rise to an umbilical fecal fistula, when it extends to the umbilicus or becomes adherent. It forms an adjacent peritoneal surface and a band beneath a loop of small intestine may be caught and strangulated.

Meckel's diverticulum, being an appendage of the lower portion of the ileum, is prone to about the same infections as the appendix. In a small percentage of cases chronic inflammation causes partial obliteration of the lumen. As the diverticulum becomes distended active peristalsis ensues, the inner coats are invaginated into lumen of the intestine, active peristalsis may be

transmitted to the walls of the ileum, toward the cecum with the resulting invagination of the ileum or intussusception and intestinal obstruction.

Unless the diverticulum becomes the seat of an infective process or partial obliteration, it does not cause symptoms, but when it is involved, the symptoms are usually allied to those of acute or chronic appendicitis and is very difficult to differentiate without laparotomy. Of course when intussusception ensues, diagnosis of obstruction can be made.

When in operating for appendicitis we do not find sufficient trouble to account for the symptoms, we should always inspect the lower ileum for diverticula.

REPORT OF TWO CASES.

CASE NO. I. J. M. age 27. Referred to us by Dr. Frank Bowman. Married. Family history negative. One brother had appendicitis, 1912.

Past History. Diseases of childhood. Enjoyed good health up to July 5th, 1910, when he was taken with cramp-like pains across the abdomen, which lasted one hour, tenderness across the abdomen below umbilicus for three days; had some fever; confined to bed for three days, so-called "Typhoid Abortive;" bowels have always been constipated, more so for the last three months. Never any vomiting, no blood in stools.

Present Trouble. Began Tuesday 9 A. M., Dec. 9th., with cramp-like pains across the abdomen, which seemed to localize in lower right quadrant of abdomen, nausea, vomited once, went to bed, tenderness and rigidity of right rectus muscle. Marked distention in right iliac region. Pain persisted all day, mind not clear, temperature 99, pulse 120.

Operation. Operated Dec. 9th., at 6 P. M., Diagnosis—appendicitis or partial obstruction. On opening the abdomen there was revealed an intussusception of the ileum two feet from ileo-cecal junction, due to inflamed Meckel's diverticulum inverting and obstructing lumen of gut; upon withdrawal of the intussusceptions, the Meckel's diverticulum was found completely gangrenous; the bowel was dark red and in some portions almost black, but after continued application of hot moist saline pads for about fifteen minutes, it recovered sufficiently so that we decided it was safe to return it to the abdomen. The diverticulum was removed along with a small segment of the bowel. The patient made an uneventful recovery.

CASE NO. II. Age 56. Personal and family history negative.

Present History. Two months duration. No acute condition, pain, (colicky in character) over whole of abdomen—more intense over McBurney's point; no vomiting, no nausea, bowels regular and appetite good.

Examination. Slight tenderness and rigidity on deep pressure over appendix, no palpable tumor.

Operation. Four inch right rectus incision. Its middle opposite the umbilicus; appendix normal; gall bladder normal; mass was detected three inches from the ileo-cecal junction with partial closure of the lumen of the intestine. This appeared to be a partial-intussusception which could not be reduced so three inches of the ileum was resected and an end to end anastomosis was made.

Pathology. The mass proved to be an end ulcer-

ated diverticulitis with an invagination of the diverticulum drawing in after it on each side about one inch of ileum, leaving the lumen of the intestine about a half an inch in diameter. This was so firmly adherent that on reducing it the intestine was torn through. The diverticulum was about two inches in length and three-fourth inches in diameter and had ulcerated through at the tip.

REPORT OF A CASE OF LOWER TRACHEO-BRONCHOSCOPY FOR THE REMOVAL OF FOREIGN BODY.

JOHN R. ROGERS, B.S., M.D.
GRAND RAPIDS, MICHIGAN.

Saturday evening, February 28th, I was called to see P. H. an infant of 17 months. The following history was elicited.

History.—On the previous Wednesday evening the child had been given a salted peanut by his older brother, and while chewing it had contrived to inhale a portion into his trachea. The mother on entering the room had found him dyspneic and cyanosed. She removed some pieces of peanut from the child's mouth, and by inverting the infant succeeded in relieving in a measure its attack of choking. After this the child breathed fairly well at times, but had recurring attacks of cough, cyanosis and dyspnea, some of them very severe, and also gave evidences of pain and distress in the chest. The next day (Thursday) a physician was consulted, who is said to have put his finger down the child's throat, telling the parents that the obstructing foreign body had been pushed down. The child's symptoms, however, were not relieved. According to the mother's account it was not able to breathe except in the sitting posture, it refused nourishment and was listless and apathetic, with frequent seizures, described by her as "choking spells." This continued until Saturday evening, when after an unusually severe attack, I was hurriedly called.

Examination.—The child was sitting up in bed and had a distinctly sick and distressed look, respiration was hurried and labored, but there was no cyanosis. On inspection the right side of the chest showed diminished respiratory movements, with a corresponding increase of respiration on the left side. A laryngeal inspection was not attempted at this time.

Auscultation revealed large moist râles over the whole of the left chest; on the right there were loud whistling râles better heard at the back toward the lower border of the scapula. At a point corresponding to the second interspace in front, and downward there was a noticeable diminution of the breath sounds. On percussion there seemed to be at times a tympanitic note on the right which was absent on the left. After consultation with two physicians, the diagnosis was made of a foreign body in the right bronchus partly obstructing respiration.

Operation.—The child's condition not being immediately alarming at this time; it was removed to Butterworth Hospital. There, under chloroform anesthesia, a direct inspection of the larynx with the illuminated laryngoscope was made. The larynx and surrounding structures were found to be somewhat edematous but no foreign body was seen.

On account of the small calibre of the trachea and the probable small size of the foreign body it was decided not to attempt to reach the latter through the glottis, but to do a low tracheotomy and explore the bronchi in this way. This was accordingly done. The foreign body was found on the

right side of the first bifurcation of the right bronchus, at a point corresponding with the second interspace in front.

The foreign body was removed by three introductions of the forceps, and was broken up into five pieces by the crushing action of the instrument. The pieces when assembled made up a wedge-shaped body measuring about five and one-half millimeters at the base and six and one-half millimeters along the sides; thickness irregular, but approximately 2 millimeter. The apex of the wedge was located in the bronchial tube at its first bifurcation, the base projecting into the lumen of the larger bronchus.

Post-Operative Course.—Temperature just before operation was 102.4; pulse 160; respiration 64. A few hours later temperature had dropped to 99; pulse 120; respiration 40. For a few days the temperature fluctuated slightly from 98.8 to 100; respiration from 30 to 40.

In two days after the operation the child was apparently quite normal, and has made an uneventful recovery, being discharged from the Hospital on Monday, March 9th.

The Chevalier Jackson bronchoscope was used.
525 Metz Building.

PROPAGANDA FOR REFORM.

AMORPHOUS PHOSPHORUS. Amorphous or red phosphorus is chemically most inactive and pharmacologically is generally considered without action. Now Dr. I. L. Nascher proposes amorphous phosphorus as a remedy of remarkable value for arteriosclerosis of old age, but produces no reliable evidence for his claim. Based on Nascher's assertions Sharp and Dohme advertise Pill Phosphorus Amorphous S. and D. as a successful method of treatment for senile arteriosclerosis. The asserted actions of amorphous phosphorus are such as may be calculated to appeal to the sexual neurasthenic and the advertisements are likely to bring about an extensive use of the drug by the uncritical. The psychic element which plays so large a part with the sexual neurasthenic will bring favorable reports on the drug—at least for a while—just as one time ordinary phosphorus had a vogue (*Jour. A.M.A.*, March 7, 1914, p. 793).

THOXOS. Thoxos is offered to physicians by John Wyeth and Brother for the treatment of rheumatism, rheumatic arthritis, gout, etc., with the following incomplete statement of composition: "It is a palatable solution of Strontium and Lithium soluble salts, thirty-two grains, combined with twenty-four minims Wine of Colchicum Seed and a vegetable alternative, in each fluidounce, flavored with aromatics." From an examination in the A.M.A. Chemical Laboratory it was concluded that Thoxos contains strontium salicylate, lithium salicylate, small quantities of sodium salicylate, free salicylic and potassium iodid, and probably also colchicum and sarsaparilla. As strontium and lithium salicylate are generally considered to have about the same action as sodium salicylate Thoxos may be considered as equivalent to a preparation containing in each dose of one teaspoonful 3 grains of sodium salicylate with a fractional dose of colchicum and potassium iodid (*Jour. A.M.A.*, March 21, 1914, p. 949).

RED PHOSPHORUS. I. L. Nacher in a letter to the *Journal* states that he has had nothing to do with the exploitation of Pill Phosphorus Amorphous S. and D. He admits that he has no experimental basis for the use of this remedy and that his theory is simply a theory without facts to prove it. (*Jour. A.M.A.*, March 28, 1914, p. 1032).

TRANSACTIONS

OF THE

Clinical Society of the University of Michigan

Stated Meeting, March 11, 1914

The President, R. BISHOP CANFIELD, M.D., in the Chair

Reported by REUBEN PETERSON, M.D., Secretary

Reading of Papers

A DIAGRAM OF THE HEART CYCLE, PICTURING THE CHANGES OF FORM OF THE AURICLES, VENTRICLES, CARDIOGRAM, AND VENOUS AND CAROTID PULSE CURVES.

WARREN PLIMPTON LOMBARD, M.D.

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The diagram which is here presented is brought before you, not because it contains any new facts, but in the hope that a picture of the series of phases through which the heart passes in the course of a normal cycle, and the synchronous changes in the form of the cardiogram, and the records of the venous and carotid pulse may serve as a basis for a discussion. Much of our knowledge of the action of the heart, and its relation to the circulation of the blood, has been in the past contributed by the scientific practitioner and it is probable that in the future we must look to the work of the clinical even more than of the physiologic laboratory for advance in this direction. Many of the points which are illustrated in the diagram are far from settled, and as divergent views cannot appear in a single scheme, it is necessary to present those which seem to have the strongest support and which fit into a harmonious whole. I know that there are many present who, through their daily study of the changes wrought in the action of the heart by disease, will be capable of suggesting important changes in the picture which is offered, and it is in the hope that such suggestions will be made that the diagram is brought before you.

The diagram assumes that a normal heart is beating at the rate of 75 per minute and that one complete cycle occupies eight tenths of a second. Each of the spaces enclosed by the

unbroken vertical lines is 0.1 second; and in the horizontal spaces, reading from above downward we see the duration of the systoles of the auricles and ventricles, and the period of diastasis; the time of occurrence of the heart sounds; the periods when the semilunar and the auriculoventricular valves are open; (the upper light band covering the period when the semilunar valves are open, and the lower light band showing when the auriculoventricular valves are open); the changes in the form of what may perhaps be regarded as a typical cardiogram; the waves of the venous pulse; two serial views of the changes of form of the auricles and ventricles of the right heart, the large arteries, and the position of the heart valves, (the upper series being given because it illustrates the action of the heart with respect to the associated waves of the venous pulse curve, and the lower because it pictures the relation of the heart to the pressure waves in the arteries); and, finally, at the bottom, a sphygmogram of the carotid pulse. Of course these schemes of the action of the heart are purely diagrammatic. The ninth heart picture on the lower line would be a truer representation of the heart. In fact, to bring out the effects of action, great liberties have been taken; only two curtains of the tricuspid valve are shown; the pulmonary artery is made to lie in close contact with the right auricle, although as it winds around the aorta, it is the aorta which is most intimately related to the wall of the right auricle; the right ventricle is pictured as forming the apex of the heart, although in fact it is the tip of the left ventricle which is the apex. The horizontal lines beneath each of the series of hearts represent the chest wall. Allowance has been made for the postponement of the venous and carotid pulse curves, by shifting them a little to the left, so as to bring them into closer relation to the processes upon which they are supposed to depend.

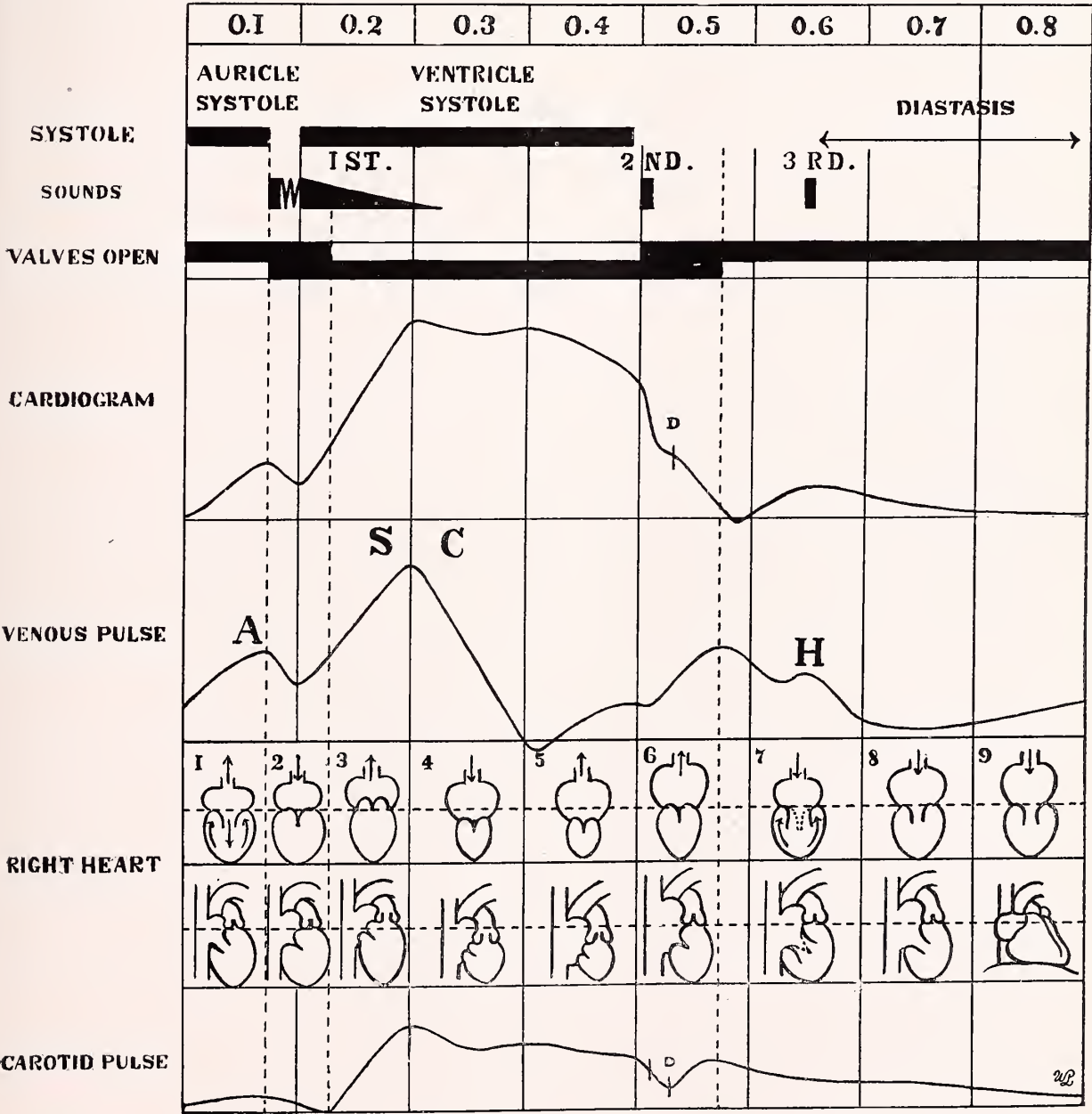
I propose to take up each 0.1 second of the cycle in order, and to review the processes depicted as occurring during each successive period.

THE FIRST TENTH OF A SECOND.

VALVES. The semilunar valves are closed. The auriculoventricular valves are open at

denly relax, (the relaxation is helped by the elastic recoil of the lung fibers which were stretched when the auricle contracted. This is especially true of the right auricle. Both auricles are, of course, affected by the continuous negative intrathoracic pressure).

VENTRICLES. The ventricles, already full, are suddenly slightly over-filled by the quick,



A diagram of the heart cycle, picturing the changes of form of the ventricles, cardiogram and venous and carotid pulse curves.

the start and are closed toward the end of the period, because of the brief, rapid injection of blood into the ventricles by the systole of the auricles, this being followed by an immediate relaxation of the auricle and an elastic recoil of the ventricular wall.

AURICLES. The auricles contract and complete the filling of the ventricles and then sud-

denly relax. Pressure currents are working behind the valve curtains, and the elastic recoil of the ventricular walls closes the valves.

CARDIOGRAM. The suddenly distended ventricle presses on the wall of the chest during the systole of the auricle, and then suddenly

lessens its pressure, as the auricle relaxes. The cardiogram records the auricular systole.

VENOUS PULSE. The record shows the "first positive wave," a pressure wave, due to the sudden increase of tension in the auricle as it contracts and completes the filling of the ventricle; and "the first negative wave," a negative pressure wave, caused by the sudden relaxation of the auricle.

CAROTID PULSE. A very slight wave is often seen, corresponding to the contraction of the auricle. These changes originate at the root of the aorta, and are caused by the expansion and the elastic recoil of the wall of the ventricle, as a result of the injection of blood by the auricle.

THE PRESPHYGMIC PERIOD.

This period falls between the two dotted verticle lines, in the latter part of the first tenth of a second, and the first part of the second tenth of a second. It extends from the time that the auriculoventricular valves close, to the time that the semilunar valves open, that is, it is a period during which both sets of valves are closed.

VALVES. The first sound of the heart begins with the closure of the auriculoventricular valves, very early in the period, and the quality of the sound changes during the period, the valvular element merging into the sound waves thrown out by the *cordae tendinae*, and immediately after, by the muscle fiber of the walls of the ventricles, when they are suddenly put under tension.

AURICLES. The auricles suddenly enlarge at the very beginning of the period, so that the pressure falls below the ventricular.

VENTRICLES. The pressure falls suddenly for a brief period, as the auricles relax, and then begins to rise as the ventricles begin to contract, during the latter part of the period. As they contract, the ventricles harden; the apex is rotated forward, and to the right, so as to press more firmly on the wall of the chest; the ventricles begin to narrow laterally and anteroposteriorly, and probably lengthen somewhat.

CARDIOGRAM. At the beginning of the period, the curve falls, as the auricles relax, and then rises because of the increased pressure exerted on the wall of the chest by the contracting ventricle. This rise is the best mark that we have of the instant of the beginning of the contraction.

VENOUS PULSE. The "first negative wave," seen in the early part of the period, caused by the fall of pressure in the relaxing auricle, is immediately followed by the beginning of the

"second positive wave" due to the protrusion of the tricuspid valves at the beginning of the systole of the ventricle. The third heart picture, or rather one resembling it, belongs on the dotted line marking the close of this period.

CAROTID PULSE. The curve falls slightly because the blood is flowing out of the vessel into the capillaries. Occasionally a slight extra fall is seen accompanying the auricular relaxation.

THE SECOND TENTH OF A SECOND.

VALVES. The auriculoventricular valves keep closed, and are protruded into the auricles by the forceful contraction of the ventricles. The semilunar valves are opened shortly after the beginning of this period.

AURICLE. The auricle is tending to enlarge, but at the same time being encroached upon by the protrusion of the auriculoventricular valves from the contracting ventricles, and an upward push of the base of the ventricle.

VENTRICLE. The systole of the ventricles begins, and early in this period the pressure rises above that in the arteries, and the valves open, and the blood begins to pass out. The sudden tension of the muscle fibers contracting on the resisting blood causes the dull sound, which prolongs the first sound of the heart. Inasmuch as the sound does not last throughout the systole, it is unlikely that it is caused by the contraction process, as such. It is not unlikely that as the ventricle begins to contract it narrows from side to side and slightly lengthens, the base going up a little.

CARDIOGRAM. The curve is rising. The resistance of the blood in the aorta causes the hardening apex of the heart to press more firmly on the wall of the chest, and the resistance of the blood in the pulmonary artery helps to cause increased pressure on the diaphragm; (the systole causes a decided depression of the diaphragm, which is strongly felt by the hand when placed against its under surface.) Although the ventricles finally narrow in all diameters during systole, probably, at first, the narrowing is most in the lateral and anteroposterior directions, the blood being compressed by the swelling muscle, and the ventricle tends to lengthen rather than shorten.

VENOUS PULSE. The marked rise in the curve of the venous pulse, "the second positive wave," is generally attributed to the protrusion of the tricuspid valve curtains, caused by the rapidly increasing tension of the blood in the ventricle. This would hardly seem sufficient to account for the extent of the rise, although such a pressure wave, meeting the accumulating blood in the vein, would have considerable effect. It is not unlikely that in the early part of the systole the ventricle lengthens, and that

the whole floor of the auricle rising adds to the effect.

CAROTID PULSE. The primary wave begins to rise when the semilunar valve opens, that is, a short time after the beginning of this period, and 0.03-0.04 second after the beginning of the second positive wave of the venous pulse curve, the S wave, or, as it was formerly called, the C wave. This time relation, like the shape of the cardiogram and the two pulse curves, is altered by the effect of respiration. The primary wave rises rapidly and vigorously, usually to the full amount the systolic pressure can distend the artery. It is possible that the swelling of the root of the aorta, where it is in contact with the right auricle and the superior vena-cava, helps to cause the large second positive wave seen in the venous pulse curve; but as this usually starts before the primary wave of the carotid pulse, it is unlikely that the change in the arteries initiates the second positive wave.

THE THIRD TENTH OF A SECOND.

VALVES. All hold the same position.

AURICLES. The auricles are relaxing, and are being filled by the pressure of the blood accumulating in the veins. They are rapidly expanding and are being opened up by the elastic pull of lung fibers, (a pneumocardiogram shows an increase in the negative pressure in the chest due to contraction of the ventricles and this may slightly assist). Also they are filling because of the descent of the base of the ventricles, the floors of the auricles, caused by the combined effects of the shortening of the ventricles and the lengthening of the arteries, as the blood is forced into them. All this means that blood is being drawn out of the veins.

VENTRICLES. As they empty the blood into the arteries, the base of the ventricles descends at the same time that the ventricles shorten and the stretched large arteries lengthen.

CARDIOGRAM. The curve may continue to rise and may show a more or less level plateau, or may fall slightly, according to the character of the contraction of the heart and the resistance which the blood meets in the arteries.

VENOUS PULSE. The curves fall rapidly and very markedly, giving the "second negative wave." This is due to the rapid expansion of the auricles, and particularly to the rapid descent of the base of the ventricles, caused by their contraction and the lengthening of the large arteries.

CAROTID PULSE. A predicrotic wave may be seen. This is frequently an instrumental error. One thinks also of wave reflections from the periphery, and, since the aorta is in commu-

nication with the ventricle, of a wave of central origin, perhaps transmitted from the diaphragm.

THE FOURTH TENTH OF A SECOND.

VALVES. Toward the end of the period, the pressure of the blood in the sinuses of valsalva, causes the curtains of the semilunar valves to approach.

AURICLES. The rapid filling during the preceding period results in a slight elastic recoil. Also they are being pressed on by the swelling roots of the arteries.

VENTRICLES. They are continuing to draw together, and are completing the filling of the arteries.

CARDIOGRAM. The curve usually falls slightly, because the ventricles as they draw together, press less strongly on the wall of the chest. (In the diagram the apex is represented as leaving the wall, which of course it never does.)

VENOUS PULSE. Frequently a slight rise of the curve occurs, the introductory part of the V wave. This has been called the first onflow wave. It may be readily confused with a wave which is an instrumental error. It may be caused by the continued accumulation of the blood in the veins, and, as seems to me more probable, to a pressure wave from the auricles, resulting from an elastic recoil following the large inflow of blood in the preceding period.

CAROTID PULSE. The systolic plateau is generally falling slightly.

THE POSTSYSTOLIC PERIOD.

VALVES. This starts with the sudden closure of the semilunar valves, caused by the rapid fall of pressure in the ventricles and the elastic recoil of the roots of the large arteries. The closure of the valves causes the second sound of the heart. The auriculoventricular valves open at the end of the period, at the instant that the pressure in the ventricles has fallen below that in the auricles. In other words this is a period during which both valves are closed.

AURICLES. These are continuing to fill from the veins. The pressure is suddenly increased by the rapid rise of the base of the relaxing ventricles.

VENTRICLES. The ventricles are rapidly relaxing, and the sudden fall of pressure results in a quick closure of the semilunar valves at the beginning of the period, and the opening of the auriculoventricular valves at the close of the period.

CARDIOGRAM. A rapid fall of the cardiogram is seen, due to the dilation of the ventricle lessening the pressure on the chest wall. The

fall is interrupted for a brief instant, and a shoulder is seen on the falling curve; this shoulder is very likely caused by a pressure wave transmitted from the roots of the large arteries, when the relaxing ventricular walls withdraw their support.

VENOUS PULSE. The "third positive," the V wave, continues to rise, and bends up quite sharply, the bend starting at a time corresponding to about the middle of the descending limb of the dicrotic notch in the carotid curve, that is, just after the beginning of the relaxation of the ventricle, and at about the time that the second sound is heard. It is caused by a pressure wave developed in the right auricle by the sudden return of the base of the ventricle. The wave is cut short by the opening of the tricuspid valves, when the pressure in the auricle suddenly falls as the blood rushes into the ventricle.

CAROTID PULSE. The fall of the curve to the dicrotic notch starts at the very beginning of the period, just after the ventricle, as shown by the beginning of the fall of the cardiogram, begins to relax. The notch is the result of the withdrawal of the support of the root of the aorta, when the ventricular wall relaxes at the beginning or diastole. The following dicrotic wave is caused by the elastic recoil of the root of the aorta.

THE FIFTH TENTH OF A SECOND.

As most of this is taken up by the post-systolic period which has been just described, it will be unnecessary to consider it further.

THE SIXTH TENTH OF A SECOND.

VALVES AND SOUNDS. The auriculoventricular valves on the right side, the tricuspid, flap together for an instant, when a large amount of blood enters the ventricle rapidly, and produce a faint sound, the third sound of the heart. The effect is supposed by Thayer to be produced by pressure waves or currents reflected back along the wall of the ventricle into the spaces behind the valve curtains. (Einthoven who, as a result of experiments with the string galvanometer, places the sound 0.13 seconds after the second sound, says that it is due to an after vibration of the semilunar valves.) Similar effects might occur in the left heart, in conditions causing an unusual accumulation of blood during systole, and following a sudden inrush at the beginning of diastole, for example by mitral insufficiency.

AURICLES. The blood is leaving the auricles and filling the ventricles.

VENTRICLES. They are enlarging rapidly and filling with the blood.

CARDIOGRAM. Shows a rise due to the pres-

sure of the enlarging ventricles on the wall of the chest.

VENOUS PULSE. The "third negative wave," which started towards the close of the preceding period, continues its fall. It is due to the sudden lowering of the pressure in the auricle as the blood rushes into the ventricle. The fall is sometimes interrupted by a little wave, the H wave, which comes at the time that the third sound of the heart is heard, and under similar conditions. It is supposed to be due to a pressure wave caused by an elastic recoil of the wall of the ventricle, when it has been suddenly distended by the inrush of an unusually large amount of blood from the auricle.

CAROTID PULSE. Curve falling.

SEVENTH AND EIGHTH TENTH SECOND.

There is little to be said concerning these periods. Henderson has called the time from the third sound, that is, about the middle of the preceding period to the end of the cycle, the period of "diastasis." During this time the semilunar valves are closed, and the auriculoventricular valves open. It is this period that is chiefly shortened by moderate increase in heart rate. Both ventricles and auricles are at rest, and blood is flowing into them from the veins, completing the filling. The cardiogram has fallen to the base line. The venous pulse curve usually shows a slight rise due to the accumulation of blood in the veins. The carotid curve is slowly falling, as the arteries empty the rest of the blood which was received during the ventricular systole into the capillaries.

DISCUSSION.

DR. ALBION W. HEWLETT: It is very difficult to realize how much work is necessary in the preparation of such a diagram as has been shown, on account of the many divergent views that must be reviewed and reconciled. The carotid pulse which Dr. Lombard has drawn is the usual one; but when recorded by a sensitive instrument certain points of difference appear. There is a brief sharp wave preceding the main pulse wave and the dicrotic wave is also sharper and shorter than has been figured here. The study of abnormal venous pulses may throw some light on the interpretation of the normal. For example, two explanations have been given for the negative character of the normal venous pulse during ventricular systole. According to one it is due to auricular diastole, and according to the other, it is due to the descent of the base of the ventricles during ventricular systole. While both factors undoubtedly play a part in the production of the negative character of the venous pulse, there is some question as to which is the more important. During auricular fibrillation, the auricles are motionless and no diastole occurs. In such cases, the venous pulse commonly loses its negative character. It would appear from this that the diastole of the auricle is of great importance in producing the negative quality of the normal venous pulse.

DR. JAMES G. VAN ZWALUWENBURG: I should not discuss this exceedingly intricate subject if I had not spent considerable time in its study.

I am pleased to see the factor of the movements of the "base" of the heart emphasized as it deserves. It most clearly explains the phenomena of the venous pulse and of the cardiogram, and is exactly what one would expect to find from the study of the various physical factors involved, that is, the masses, velocities, inertias, etc. of the heart and its contents. Unfortunately these do not allow of mathematical expression.

I should like to extend Dr. Hewlett's comment on the carotid tracing to apply as well to the jugular. The tracing reproduced is a very typical example of a normal jugular as recorded by the ordinary instrument. However, when you use an instrument capable of recording 80 to 100 oscillations per second, the picture is quite different. It is also so variable that Dr. Agnew and I were wholly unable to reach a satisfactory solution of the problem of its analysis. It was hoped that simultaneous tracings with the intraauricular pressure curves would simplify matters. But those only introduced new problems.

One of the most important facts to be remembered in such a study is that, at the jugular, we record a volume-curve and not a pressure-curve. The distinction is a very real one. With a competent valve at the jugular bulb we may record only the results of the opening and closing during the time the valve is closed.

Altogether the problem is a very complicated one, as well as very interesting and I very much appreciate Dr. Lombard's simple exposition of the present state of our knowledge.

DR. LOMBARD (closing the discussion): I would like to say that I agree thoroughly with what has been said, that the carotid curve given on the chart, although of a form frequently obtained, is not really an ideal representation of the pulse curve. The nearest approach to what seemed to me to be an ideal pulse curve, I got by dissecting out the carotid of a rabbit, tying two ligatures about it, cutting between them, and then fastening the central end to a very light bamboo lever. The artery was stretched by each beat and the elastic oscillations of the wall were well recorded. With reference to the venous pulse, I will say that I have a tracing in the laboratory which is practically a duplicate of the one given in the chart. The venous pulse varies very much and the curves are not constant. The curve shown is perhaps a fair illustration of the time and shape of the oscillations which appear in such curves.

HUMAN BLOOD SERUM THERAPY.

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Chemical studies of the human blood and physiologic researches on circulation and coagulation have solved many perplexing problems, but when we consider some of the common vascular phenomena and try to explain them we realize that much remains to be done. As an example, normal coagulation of blood proves to be a complicated process. Normal blood is supposed to contain a substance called prothrombin which enters into combination with calcium salts and an enzyme of unknown chemical structure called kinase or zymoplastic substance and forms thrombin. Thrombin unites with fibrinogen forming a clot. This is a

theory which appears reasonable but the clotting of blood is supposed by other workers, to be a simpler process. To explain the non-coagulation of blood in the vessels this theory goes farther and supposes that there is in the blood, a neutralizing substance to prothrombin called antithrombin. Likewise, antithrombin is supposed to be neutralized by tissue juices and thus allow clotting. In other words, the explanation of the common phenomenon, blood coagulation, is based on theory and is still unsettled. I mention this fact because in discussing the uses of human blood serum, I must admit that much is unknown regarding its action. However, is this not true in regard to some of our most useful agents? Think of the results if Jenner had failed to use the virus of cowpox because he did not understand just how it acted or its relation to smallpox. I know that there are many practitioners of medicine who know that human blood serum has been used successfully by men like Welch, but feel incompetent to use it because they have become confused in reading the literature. And this is not surprising if one is confronted by such expressions as, hemorrhage due to lack of blood platelets; antithrombin and fibrinogen; serum sickness; anaphylactic shock; deaths from serum injections; and acute hemolysis due to blood transfusion.

Human blood serum is the liquid portion of the blood after coagulation has taken place. When it is obtained from a healthy person and collected in a sterile condition it is one of our most useful therapeutic agents in combating hemorrhagic disease. I will briefly mention some of the explanations or rather theories of its action. Human blood serum when injected into a person suffering from a spontaneous hemorrhage or from persistent hemorrhage due to rupture of small vessel walls, causes cessation of bleeding. This action is supposed to be due to a shortened coagulation time or to an increased firmness of the clot. The serum injected is supposed to furnish kinase, prothrombin, calcium or fibrinogen. Whipple¹ has reported hemorrhage in a case of septicemia due to antithrombin; also a case of melena where prothrombin was absent, and a lack of fibrinogen in a fatal dose of hepatic cirrhosis. Duke² finds that blood clots slowly when the blood platelet count is low. Morowitz³ believes that there is a lack of an enzyme kinase or thrombokinase. King and Stewart⁴ explain slow coagulation in cases of jaundice as due to a union of calcium and bile pigment,

1. Whipple, G. H.: Arch. Int. Med., 1912, IX, 365.

2. Duke, W. W.: The relation of blood platelets to hemorrhagic disease, Jour. Am. Med. Assn., 1910, LV, 1185.

3. Morowitz, P.: Handbuch d. Biochemischen Arbeitsmethoden E. Abderhalden, 1911, V, 223.

4. King, J. H., and Stewart, H. A.: Jour. Exper. Med., 1909, XI, 673.

free. calcium being decreased. Couradi⁵ has isolated a substance which inhibits coagulation; this he calls antithrombin. Summarizing all of the theories we must explain the action of blood serum in one of the following ways:

1. The introduction of blood serum supplies one or all of the substances necessary to produce coagulation.

2. Blood serum stimulates the blood forming organs to supply the substance which is lacking and causing the bleeding. This theory has been advanced by Cooley⁶ in a recent paper.

3. Blood serum neutralizes antithrombin or other toxic substances which are inhibiting coagulation.

4. Blood serum has an action on damaged cells of the vessel wall. This is believed by Welch.⁷

5. Blood serum neutralizes toxins which are damaging the vessels.

During the last three years, I have used human blood serum in a variety of cases, most of the work having been done in the department of obstetrics and gynecology of the University Hospital. A modified Welch apparatus for obtaining the serum, was used in all of the cases. I will briefly describe this simple and satisfactory device. A small Erlenmeyer flask is fitted with a two-hole rubber stopper. Two glass tubes, one longer than the other, and both bent, are inserted into the flask. One tube which is used as a suction tube, is connected with the rubber and tip of an ordinary blood counting pipette. Inside of the rubber tube is a small glass bead which fits tightly and acts as a valve when the rubber is not forced away from it. Inside of the glass tube, a small amount of cotton is placed to prevent saliva from contaminating the interior of the flask. The second glass tube is connected by a rubber tube with a salvarsan needle. The apparatus is allowed to boil in normal salt solution for five or ten minutes, when it is ready for use.

The donor's arm is prepared and a rubber ligature passed about the arm above the elbow. The needle is thrust into the basilic vein and by making suction on the blood counter tip the flask can be filled quickly. When the required amount of blood has been obtained, the rubber cork and glass tubes are removed and the flask is plugged with sterile cotton and set away in a cool place. It is well to place the flask, slightly tilted, in a bowl lined with cotton. Within one-half hour about 20 cubic centimeters of serum will separate from 80 cubic centimeters of blood and after a few hours about one-half volume of serum will be remov-

ed. When it is necessary to act immediately, I use the fresh blood, injecting it under the skin of the abdomen, between the shoulders or into the arms or legs. In weak children a hot water bag placed over the site of injection, hastens absorption of the serum. The following facts can be relied upon in using human blood serum:

1. It is nontoxic whether given in small or large doses.

2. No anaphylactic reaction results whether injected at short or long intervals.

The histories of some of the patients treated will be of value in illustrating the use of human serum.

CASE 1. Obstetric Number 675, Mrs. E. F. age 40, was admitted to the Maternity Service on April 3, 1912. The family and personal histories were negative until the present trouble which began five years before. The patient had been pregnant nine times and all had gone well until the fourth month of her eighth pregnancy, when she began to have hemorrhages from the rectum. A marked anemia developed and her physician induced labor. From that time until her present pregnancy she had been free from the rectal hemorrhages but they had returned during the fifth and sixth months of this pregnancy. An examination showed a very anemic woman about seven months pregnant. There was edema of the whole body and marked pigmentation of the skin. A rectal examination showed dilated vessels in a very pale mucosa and in some places blood could be seen in the mucosa, but no actual ulceration was visible. The hemoglobin reading by the Miescher apparatus was 23 per cent. with a corresponding low blood count. Examination of the stools gave a strong blood test. The first nine days the patient was given a daily injection of 20 cubic centimeters of blood serum. At the end of this time no blood could be found in the stools. The injections were discontinued and blood soon reappeared in the stools. At the end of three weeks the patient's hemoglobin was 28 per cent. The daily dose of blood serum was increased to 30 or 40 cubic centimeters and the patient improved. On May 22, she went into labor prematurely, the hemoglobin being at this time 40 per cent. This patient received over 600 cubic centimeters of human blood serum and nearly every man in the senior class donated blood. Premature rupture of the membranes occurred with prolapse of an arm and the cord. The patient did not report the accident until the child was dead and a shoulder had become impacted. She was delivered manually without anesthesia and made a good convalescence.

The interesting feature of this case was the prompt disappearance of blood in the stools when serum was used, and its reappearance when the injections were discontinued.

5. Couradi, H.: Beitr. z. Chem. Phys. I. c. Path., 1902, 136.
6. Cooley, T. B.: The treatment of hemorrhagic disorders. Jour. Am. Med. Assn., LXI, 1277.

7. Welch, J. F.: Am. Jour. Med. Sc. 1910, CXXXIX, 180.

CASE 2. Gynecologic Number 4832. Mrs. M. M., age 47, had borne two children and had been well until nine years before entrance when her menstruation became profuse and three years later she noticed a firm, smooth tumor arising in the median line of the abdomen. The flowing had increased until it had become almost constant. The patient showed generalized edema, and a marked secondary anemia with a hemoglobin reading between 10-12 per cent. Miescher. She had a hydrotic fibroid of the uterus and ascites. The patient was flowing when admitted on February 20, 1913 and the next day 30 cubic centimeters of human blood serum was injected. On the third day the flowing had ceased and the patient was given injections of blood serum at intervals of a few days. She also received the usual treatment of rest in bed, Blaud's pills, sunlight and wholesome diet. In slightly over three weeks, the hemoglobin estimation was 42 per cent. and the patient was operated upon and cured. In the ward at the same time were two patients with fibroids and severe anemia due to bleeding. These patients were also kept in bed, in the sunshine when possible, given Blaud's pills and a wholesome diet. They improved but not so rapidly as the patient treated with the serum.

CASE 3. Gynecologic Number 4728. Miss F. P. age 13 years, entered the hospital January 2, 1913, suffering from menorrhagia which began about six months before. The periods appeared about every two weeks and she would flow from eight to fourteen days. A curettage was performed but the endometrium proved to be negative. In May, 1913, she returned because the profuse flowing had reappeared. She was treated for twenty days with daily injections of 10 cubic centimeters of human blood serum and thirty grains of calcium lactate. The flowing ceased and did not recur during her stay in the hospital. The subsequent history is not known.

CASE 4. Gynecologic Number 5144. A young girl age 18, giving the same history as the one just related, was treated with human blood serum, horse serum, and calcium lactate. The bleeding was controlled but the patient spent several uncomfortable days with her giant urticarial wheals.

Human blood serum in cases of melena has come to hold the position of a specific remedy since Welch's⁸ splendid report, given in 1910. The results are nearly all uniformly good and the surprising feature is the control of bleeding by relatively small doses. I have treated but one case of melena; the result of the serum therapy was good.

In 1912, Welch⁹ called attention to the value

of human blood serum in cases of malnutrition in infants. The following case will illustrate its value:

CASE 5. Obstetric Number 661. Miss S., age 18, gave birth to a premature infant at the eighth month. The child's birth weight was about 4½ pounds or 2025 grams. The child nursed well until the twelfth day when it was nearly back to normal weight. Then he began to refuse nourishment and lost in weight very rapidly until at the thirty-second day, he weighed 1600 grams, having lost 404 grams in eighteen days. It was evident that the child was doomed if he continued his downward course for a few more days, so daily injections of 8 cubic centimeters of human blood serum were given. The first day the child gained 46 grams and each day he gained from 25 to 50 grams and was back to his birth weight after ten days of treatment. In the next sixteen days he gained 600 grams and was discharged when fifty-eight days old. Two other premature children were treated with blood serum and responded well.

I wish to relate the history of another patient.

CASE 6. I was called by Dr. John Holmes to administer blood serum to E. P., a boy, 9 years of age, who was having whooping cough and for three days had had a continuous epistaxis. This lad also had a congenital heart lesion which had been diagnosed as a persistent ductus arteriosus. A history of hemophilia in the males of the mother's family was obtained. An examination revealed a very anemic boy with a rapid heart rate. The nose was filled with soft clots and gauze packing. Perchloride of iron had been used in the nose, but there was a continuous slow ooze of blood from the nostrils.

The father gave some blood and 10 cubic centimeters of blood serum were injected into the boy's abdominal wall. A second injection was given one hour later. Within two hours the bleeding had practically ceased. Five days later the bleeding began again, but was promptly checked by giving 15 cubic centimeters of serum. The boy made a splendid recovery.

It is neither scientific nor right to draw conclusions from single cases but surely the histories reported suggest that human blood serum has a place in modern treatment. I do not wish to convey the idea that I consider human blood serum a panacea, for in three patients suffering from carcinoma of the cervix and bleeding profusely, I could not see a beneficial action. A child with a cerebral hemorrhage was treated but later died from pneumonia. I have tried human blood serum in a case of acute enteritis in a child of two years, but other treatments given at the same time made it impossible to note the effect.

8. Welch, J. E.: *Am. Jour. Med. Sc.* 1910, CXXXIX, 800.
9. Welch J. E.: *Am. Jour. Obst.* 1912, LXV, 597.

The injection of human blood serum does not compete with direct transfusion. The indications for direct transfusion of blood are clear. When a larger amount of blood is lost within a short time, or where red corpuscles are needed to carry nourishment to the vital centers, transfusion and not serum injection is indicated. Billings¹⁰ believes that when a hemorrhage has not endangered a person's life, human blood serum rather than direct transfusion should be used. Vaughan¹¹ mentions the fact that transfusions are rather frequently done when the simple administration of serum would answer equally as well.

In hemophilia and melena neonatorum human blood serum has proven its great value, but I believe that this field of therapy is broader than we know and that many lives will be saved by it.

Malnutrition in infants has always been a stubborn condition and when far advanced, has frequently proven fatal. Here, human blood serum should be tried. In the cases observed it has operated as if by magic.

The injection of human serum in women with myomata and suffering from anemia severe enough to offer an obstacle to operative work is a large field. If the bleeding is controlled for a few weeks the blood condition will so improve as to make the operation without great risk. Esch¹² has reported three cases where he used defibrinated blood to control the hemorrhage from myomata. With three injections of 15, 20 and 22 cubic centimeters, he was able to raise the hemoglobin from 25 to 46 per cent. The three patients survived their operations. Esch¹³ used defibrinated blood in treating a case of pernicious anemia occurring in the puerperium.

Surgeons have always dreaded operations upon jaundiced patients because of the frequency of primary and secondary hemorrhage. Not all jaundiced patients bleed but the liability is greatly increased. Undoubtedly here is a useful place for human blood serum therapy. Meyer¹⁴ and others have reported excellent results where the serum was given for several days preceding the operation and in doses of from 30 to 60 cubic centimeters.

It is questionable whether human blood serum or the transfusion of blood can greatly benefit patients with pernicious anemia. The frequency of megaloblastic showers and the associated improvement make one suspect that the cures reported were only the better phase of this disease. However, in secondary anemias,

whether the source of the loss of blood is apparent or hidden, human blood serum offers great possibilities.

In closing let me say that with a therapeutic agent so abundant and so harmless and with a method so simple no physician should hesitate to try human blood serum. Serum from healthy individuals is absolutely safe to inject.

DISCUSSION.

DR. REUBEN PETERSON: This work of Dr. Cummings is not only interesting but of great importance. Serum therapy is especially indicated in the two classes of cases mentioned, bleeding fibroids, and melena neonatorum. If the uterine hemorrhage can be stopped great good can be accomplished with large doses of iron, but it is not always easy to control the bleeding by packing, for the hemorrhage may be high up in the uterine canal. In patients with hemoglobin below twenty per cent. it is dangerous to curette under an anesthetic. In such cases human blood serum should always be tried and usually will be found efficacious. Just before the publication of Welch's paper, I had a case in private practice which undoubtedly could have been saved by serum therapy. It is magical to see how cases of bleeding in the new born respond to injections of blood serum and fortunately they can be administered without danger.

DR. R. BISHOP CANFIELD: I have had considerable experience with the use of horse serum, but have used human serum in but one case and that in the hopes of building up the patient's resistance to infection. There is a new preparation of calcium known as calcine, which has seemed to be of decided importance in reducing the coagulation period. This substance injected directly into the buttock eight hours before an operation in which one expects to encounter hemorrhage seems to be of decided value.

DR. JOHN T. HOLMES: The patient I had Dr. Cummings see was a case of whooping cough in a child who had epistaxis and was in a very critical condition. I decided to start in with serum injections. We gave him fifteen cubic centimeters of serum with very good results, for the next day the hemorrhage had stopped. The child remained in fairly good condition for four or five days and then the hemorrhage started again. We gave another injection of serum and the child finally got well and is now in fairly good health. This condition was associated with a heart lesion which the child had had since birth. Dr. Marshall saw the case later and thought it was probably a patent ductus arteriosus.

DR. WARREN P. LOMBARD: I would like to ask Dr. Cummings what he regards as the cause of the increase in hemoglobin. I wonder whether by taking the blood from healthy individuals you got just what was needed. I wish to ask if the blood of the patient had been analyzed, and whether in any of the cases where the blood had been examined a lack of calcium had been found. I wonder whether the giving of calcium would have done the business.

DR. CUMMINGS (closing the discussion): I believe there is a field for human blood serum in cases of malnutrition. Welch has reported several cases where the serum was used successfully and our results were entirely satisfactory.

In answer to Dr. Lombard's questions, I would say that the cause of the rapid increase in hemoglobin is the cessation of the hemorrhage. It has been suggested that the serum stimulates the blood forming organs.

10. Billings, F.: Internal Hemorrhages: Can we control them? Jour. Am. Med. Assn., 1913, LXI.

11. Vaughan J. W.: Direct blood transfusion, Jour. Mich. State Med. Soc. XII, 582.

12. Esch, P.: München. med. Wehnschr., 1911, LVIII, 2154.

13. Esch, P.: Deutsch med. Wehnschr. Berlin XXXVII,

14. Meyer, Wiley: Surg., Gynec. and Obst., 1911, XIII, 152.

THE NEW CONTAGIOUS HOSPITAL AT THE UNIVERSITY OF MICHIGAN AND ITS PROPOSED PLAN OF OPERATION.

REUBEN PETERSON, M.D.

Professor of Obstetrics and Gynecology, University of Michigan.
Medical Director, University Hospital.

Within a few weeks the new contagious pavilion of our Hospital will be fully equipped and ready to receive patients. It seems fitting, therefore, that a brief description of the building and its proposed plan of operation be submitted to the members of this Society, since we one and all are interested in seeing it a success.

It will be remembered that a year ago last August it was voted that the city of Ann Arbor bond itself for the sum of twenty-five thousand dollars for a contagious hospital. This sum of money was given outright to the University

quarantining of students not only was ineffective but meant great loss to the students and the University. The University Hospital at times has suffered a great deal from different contagious epidemics which on a number of occasions has led to the quarantining for months of certain portions of the Hospital. These quarantines not only meant a great pecuniary loss to the Hospital but greatly interfered with the clinical teaching.

Again, the University was anxious for a contagious hospital in order that it might be utilized for demonstrating contagious diseases to the senior medical students. Owing to the remarkable development and growth of the University Hospital during the past ten years, the members of the clinical faculty have had at their disposal a wealth of material for teaching purposes except in this one particular. Again and again has the faculty pointed out to the Uni-



Fig. 1. University of Michigan Contagious Hospital.

with the understanding that in return the latter was to furnish the land for the building, purchase the equipment and maintain the hospital. The city was to be charged the usual hospital rates for room, board and nursing of contagious patients, while medical attendance was to be free.

For many years both the city and the University have been in great need of a contagious hospital. The former has found it a very expensive proposition to care for its contagious patients, since it was obliged to pay the maximum price for medical attendance and nursing in this class of patients. House quarantines have been difficult to maintain and on the whole unsatisfactory, with the result that the city in the past has suffered from not a few contagious disease epidemics.

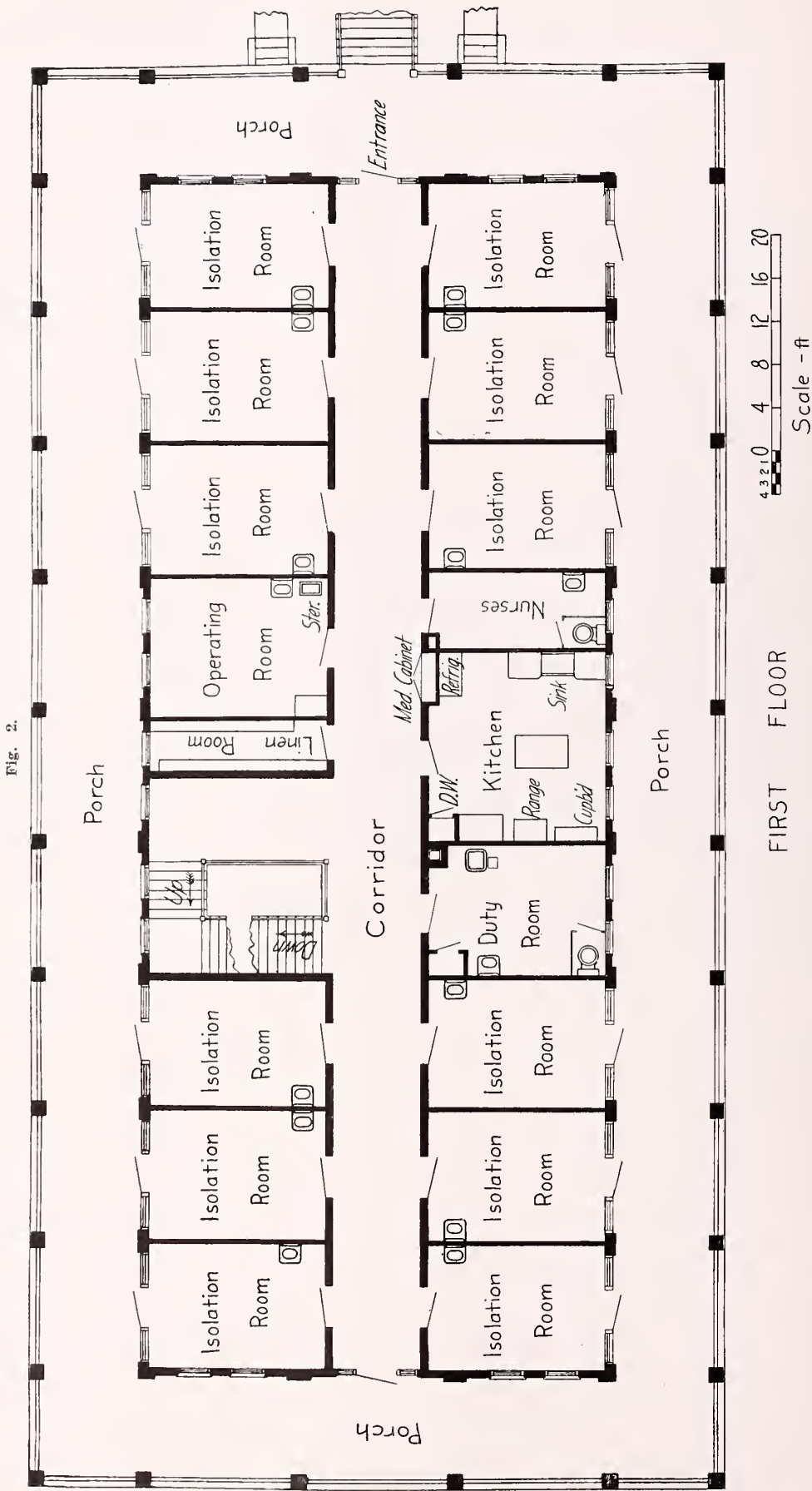
The University has been in even a worse condition as regards contagious disease. House

versity authorities the need of the proper facilities for the teaching of contagious disease, so that the University was ready for the hospital and willing to meet the city half way in order that both might be benefitted.

In order to meet the needs of both city and University the following had to be provided for:

1. The building or buildings must be so constructed as to accommodate patients with all varieties of contagious diseases.
2. The hospital must be so planned as to allow of the utilization of the patients for teaching purposes.

I distinctly remember the first plans submitted without solicitation to Dr. Hewlett and myself. These plans provided for three separate hospital units for patients with three separate contagious diseases. Each unit had its own administration and utility rooms and each opened by a separate corridor into a spacious amphitheater.



theater, where the patient was to be demonstrated to a class of students seated behind a glass partition. In these early days of the consideration of our problem this plan seemed a gem. There was only one hitch. The estimated cost of the hospital was from seventy-five to one hundred thousand dollars, three or four times the sum at our disposal. After discussing a scheme of asking the Regents for fifty thousand dollars to supplement the twenty-five thousand gift from the city and for obvious reasons giving up this

pretty well agreed that infection was not air-borne but was transmitted from one person to another by actual contact. By this is meant the virus producing the contagious disease is in reality deposited upon or within the person, who through this means contracts the contagious disease. From this it follows that if such conveyance from one person to another could be prevented by the proper technic, cross infection would not take place in a contagious hospital, even if patients with different contagious diseases



Fig. 3. View of porch on west side of building looking south.

plan as impracticable, it was decided to let the matter rest until after your medical director's visit to the east where he was to look into the contagious disease question, as applied to our problem.

I will not weary you with a detailed description of my trip and the many contagious hospitals I visited, but will endeavor to give you the results of this study. I found that the experts in the hospital care of contagious diseases were

were in the same building or even in the same room.

Nearly all of the experts referred to the pioneer work of Grancher who showed that infection is not air-borne but is from contact. They cited the examples of the French and English hospitals in the care of contagious diseases. In the Pasteur hospital in Paris the patients are kept in small cubicles in the same room and although the same nurses care for patients

suffering from different contagious disease, cross infection has been reduced to a minimum by taking precautions to sterilize everything which has come in contact with the patient.

While, as I have said, nearly all the experts were in accord that infection arose chiefly from contact, most of them did not have the courage of their convictions. In the same hospital you would see the patients cared for in accordance with the theory that infection was conveyed by contact but also that it was air-borne as well. Unconsciously they were unable to rid themselves of the old ideas regarding infection, as

up but it required many years of actual experience before surgeons became convinced once and for all that the air of the operating room had nothing whatever to do with surgical infection. The latter results from actual contact so that if the surgeon be sure that everything coming in contact with the wound is sterile, he is practically certain no wound infection will result.

Thus the theory of infection by contact as regards the contagious diseases appealed to me in two ways: First, it was in accord with my surgical experience and looked reasonable; sec-



Fig. 4. Photograph of an isolation room looking toward the central corridor.

shown by elaborate arrangements by means of adjustable partitions for preventing the air of one room from mingling with that of another.

Now this hesitancy to accept *in toto* or at least to put in practice the principles of the theory that infection is carried by contact was very familiar to me because of my experience in surgery. My hospital experience dates back to the time when the disinfection of the air of the operating room was still practiced. As an intern it was part of my duties to see that the carbolic vaporizer was thoroughly used the day preceding the operation. This was soon given

ond, if cross infection of contagious diseases could be reduced to a minimum by a system of medical asepsis, our problem here at the University Hospital was practically solved, since it meant that all kinds of contagious diseases could be treated in the same building. For one thing was certain: For the sum at our disposal, twenty-five thousand dollars, it was out of the question to erect a separate building for each contagious disease with all the duplication of administration rooms such separate buildings would entail.

Finally, in the course of my investigations I

reached the Providence City Hospital where I was overjoyed to find in actual operation, in accordance with the principles of the infection by contract theory, a pavilion which, with some changes, could be utilized for our purposes. The Providence City Hospital is a municipal hospital for the care of contagious diseases. The buildings have been designed under the supervision of Dr. Charles C. Chapin, Superintendent of Health of Providence. Doctor Chapin has been a health officer for thirty years and is an exceedingly competent man. He is a firm believer in the theory of infection by contact, as may be seen by a perusal of his valuable book,

the pavilion referred to is conducted but he has been of the greatest practical help to us in the drawing up of the plans of our contagious hospital.

The pavilion referred to is known as the Isolation Building, in which are placed doubtful or mixed cases of scarlet fever, diphtheria, chicken pox, whooping cough, rubella, mumps, measles and miscellaneous cases of infectious disease. The technic of this building is based upon the principles of aseptic nursing. The infection is confined to the rooms occupied by the patients, while the utility rooms and the central corridors are considered to be as free from



Fig. 5. Photograph of an isolation room looking toward the porch.

“The Source and Modes of Infection.” A recent article of his in the February 7th number of the *Journal of the American Medical Association* entitled, “The Air as a Vehicle of Infection” is of especial interest in connection with our subject.

Dr. L. R. Richardson, the superintendent of the hospital, is also a very able man and is courtesy itself when it comes to placing at the disposal of medical visitors the results of medical asepsis in the treatment of contagious diseases. Not only did he spend a great deal of time with me explaining the system under which

contagion as are those of any general hospital. The same nurses, observing aseptic precautions, care for all patients. The interesting fact in connection with this building is that the technic employed has been proved to be eminently satisfactory, since only a very small percentage of cross infection has occurred among the large number of patients treated in this building. Since it is proposed to adopt practically the same technic in our own hospital as that in use at the Providence City Hospital, the details will be omitted until our hospital plan has been discussed.

As you are aware, our contagious pavilion is situated to the east and slightly north of the Psychopathic Hospital. This site was selected by the Board of Regents for the following reasons:

1. It was the best site available in that it provided for a maximum amount of fresh air and sunlight, both of which are highly desirable in the treatment of contagious diseases.

2. It was near enough to the general hospital and its power plant to provide for tunnel connections at a minimum cost. At the outset it was realized that separate kitchen, heating and lighting plants for the new hospital would be very expensive, so far as maintenance is concerned. As soon as possible it is proposed to connect the building with the main hospital by a tunnel not only large enough to convey steam and electric light mains, but also to allow of traffic. In this way it will be perfectly possible to convey food to the pavilion from the main kitchen, besides providing a protected passage-way from the main hospital for nurses, doctors, students and employees. Such a tunnel is absolutely necessary if the pavilion is to be utilized to the greatest advantage.

The building itself has been designed by Mr. J. H. Marks, Superintendent of the university buildings and grounds department in accordance with the suggestions submitted by the members of the medical faculty and your medical director. (Fig. 1). The provisional plans were sent to six or eight well known experts in contagious diseases with a request for suggestions and criticisms. In fact every effort has been made to make the building in every way practical and useful. Undoubtedly mistakes have been made, for no hospital is ever perfect, but at least those designing the building have known what they wanted and have considered each point in detail.

From the outset it was felt that the hospital should accommodate at least twenty-four patients. This capacity has been kept constantly in mind and when it was seen that the cost of the building was going to exceed twenty-five thousand, a cut was made in the construction, rather than in the number of hospital beds. Many things have been omitted which would have gone in had a larger sum of money been available. But the orders of the Board of Regents were not to expend a dollar beyond the sum received from the city. During the planning and construction of the hospital this seemed rather a hard ruling but after all perhaps it is just as well for as a result it shows how much can be done in hospital construction for twenty-five thousand dollars.

The hospital runs north and south, is of the bungalow type and is of semi-fire proof construction. It is 103 feet long and 40 feet wide exclusive of a ten foot porch surrounding the

entire building and on a level with the first floor. All bearings are of brick or concrete and all bearing members other than these are of steel. The roof construction is not fire proof which, considering the many points of egress from the building, does not seem necessary from a personal hazard standpoint. The heating plant is designed for steam to be furnished eventually from the central plant through a tunnel which will also serve as a passage-way to the building from the general hospital. The electric lighting is of the old direct type though the wiring is adequate for the indirect system in case this be decided later to be desirable. No expense has been spared on the plumbing, the materials and fixtures of which are the best obtainable. The concrete and plumbing work was done by contract, the electric wiring and painting being done by the University. From the standpoint of construction the building is very satisfactory, all workmanship being first class.

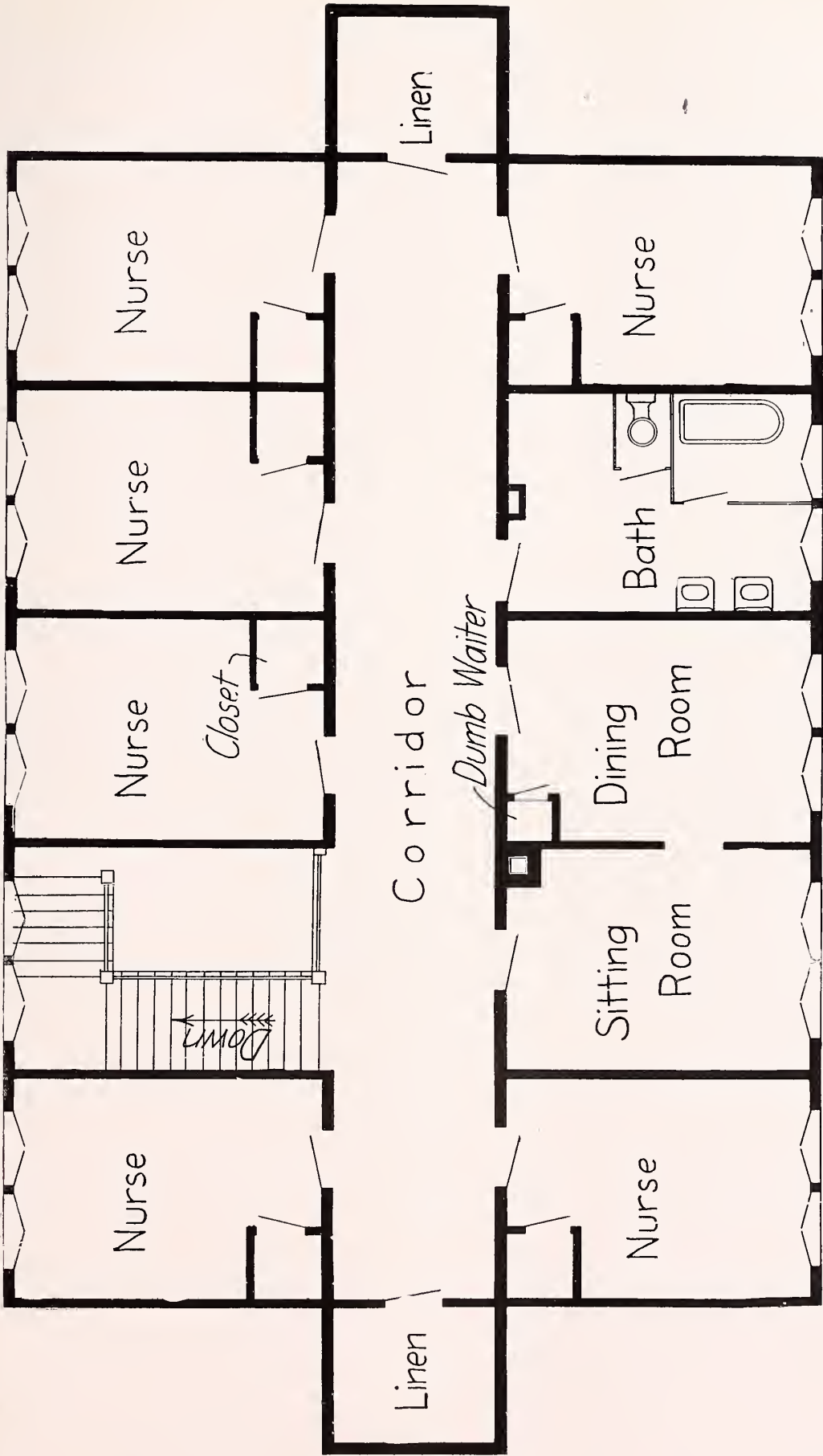
The first floor (Fig. 2) is entirely given over to patients and service rooms. The latter, consisting of utility, bath and operating rooms are situated in the center and are therefore readily accessible to the patients' rooms which are located at either end of the building. These twelve rooms are of the same size, 12 by 16 feet, and each can easily accommodate two persons.

Each room opens upon the ten foot porch by means of a door wide enough for the passage of an ordinary hospital bed. (Figs. 3 and 5). On each side of this door are windows over which are situated transoms. The upper half of the door, opening upon the central corridor, is also of glass. The result is an abundance of light for each room in spite of the covered porch.

Each room is furnished with a lavatory where the hot and cold water is regulated by a knee pressure device. The furniture of the rooms is to be of the simplest. It will consist of two iron beds, two bed side stands, two enameled chairs, shelf for towels, soap retainer worked by foot pedal, brackets for wash basins holding solution, two small shelves for toilet articles, and wall hooks for nurses' gowns. (Figs. 4 and 5).

In order to avoid a common error of hospital construction, the utility room and diet kitchen have been made especially large. The operating room is also of good size. The linen closet, situated in the center of the building next to the hallway is plenty large enough for the supplies of twenty-four patients. The bath room was intentionally made small since the common use of such a room was impossible with men and women patients on one floor. Even with two bath rooms patients with different contagious diseases could hardly use the same toilets without great danger of infection. When bedside bathing is necessary it will be done by means

Fig. 6.



SECOND FLOOR

of a portable bath tub which will be emptied and sterilized after each use.

In the summer the entire porch will be screened. This will permit of the free opening of the doors and windows leading to the porch and insure plenty of fresh air.

The second floor has been arranged to accommodate twelve nurses. (Fig. 6). Besides the six bedrooms, each of sufficient size for two nurses, there is a dining room, a comfortable sitting room and adequate toilet facilities.

The entire basement with the exception of the morgue and laboratory has been given over to sterilization purposes. (Fig. 7). On the east side of the central corridor will be installed a most complete hospital fumigating and sterilization plant. Here will be disinfected the mattresses and the laundry before it is taken to the main hospital laundry. In the same apparatus articles impossible of sterilization by high pressure steam can be disinfected by formaldehyde vapor. Leading from this sterilizing plant will be a storage room for disinfected mattresses. The rooms across the hall have been arranged into infected and uncontaminated rooms for doctors, nurses, students and employees. The clean rooms will be plentifully supplied with steel lockers in which can be placed the street clothing of those entering the hospital. All these rooms have abundant lavatory facilities, so that all infectious material can be removed before the workers don their street clothing.

On the same side with these rooms is a patients' dismissal room equipped with a bath tub and lavatory, where the patient is thoroughly sterilized before entering the patients' locker room in which his disinfected clothing has been placed.

The floor of the porch has been made high enough and the grading so arranged as to allow of four-foot windows in the basement. These windows together with the white painted walls furnish light in abundance.

The main hospital entrance is at the south end of the building. This entrance leads to the basement and the first floor. There is no elevator in the building, the different floors being connected by a wide central stairway. A large dumb-waiter runs from the tunnel entrance in the basement, through the diet kitchen on the first floor to the nurses' dining room on the second floor.

The success or failure of the hospital under its proposed plan of operation will depend largely upon how the nursing staff carries out the principles of medical asepsis. The nurses will be in charge of one of our own graduates, an excellent executive who has spent months in perfecting herself in the technic which has proved so satisfactory at the Providence City Hospital. Before the hospital is opened the nursing staff will be thoroughly drilled in the

principles of medical asepsis. Just as in the surgical operating room they will be taught that the conveyance of any infectious material to those free from disease may and probably will result in infection. They will be told that if they contract a contagious disease while on the contagious diseases service, it will be through their own or their associates' fault. Just as it is impossible for a well trained nurse to brush back her hair in the operating room or touch articles not surgically clean, so it will become impossible for the nurse drilled in medical asepsis, who has cared for a contagious patient, to touch anything until her hands have been thoroughly sterilized.

The nurse on entering the room to care for her patient will put on a gown, in order to avoid accidental contamination of her clothing. After attending to her patient she will remove her gown and thoroughly sterilize her hands and arms in running water and liquid soap, obtained from a retainer worked by a foot pedal so that the infected hands do not need to touch the receptacle. After immersing the hands and arms in some mild but effective antiseptic solution, the nurse can leave the room confident that she will not carry contagion to another patient. The main corridor is free from infection and is kept so.

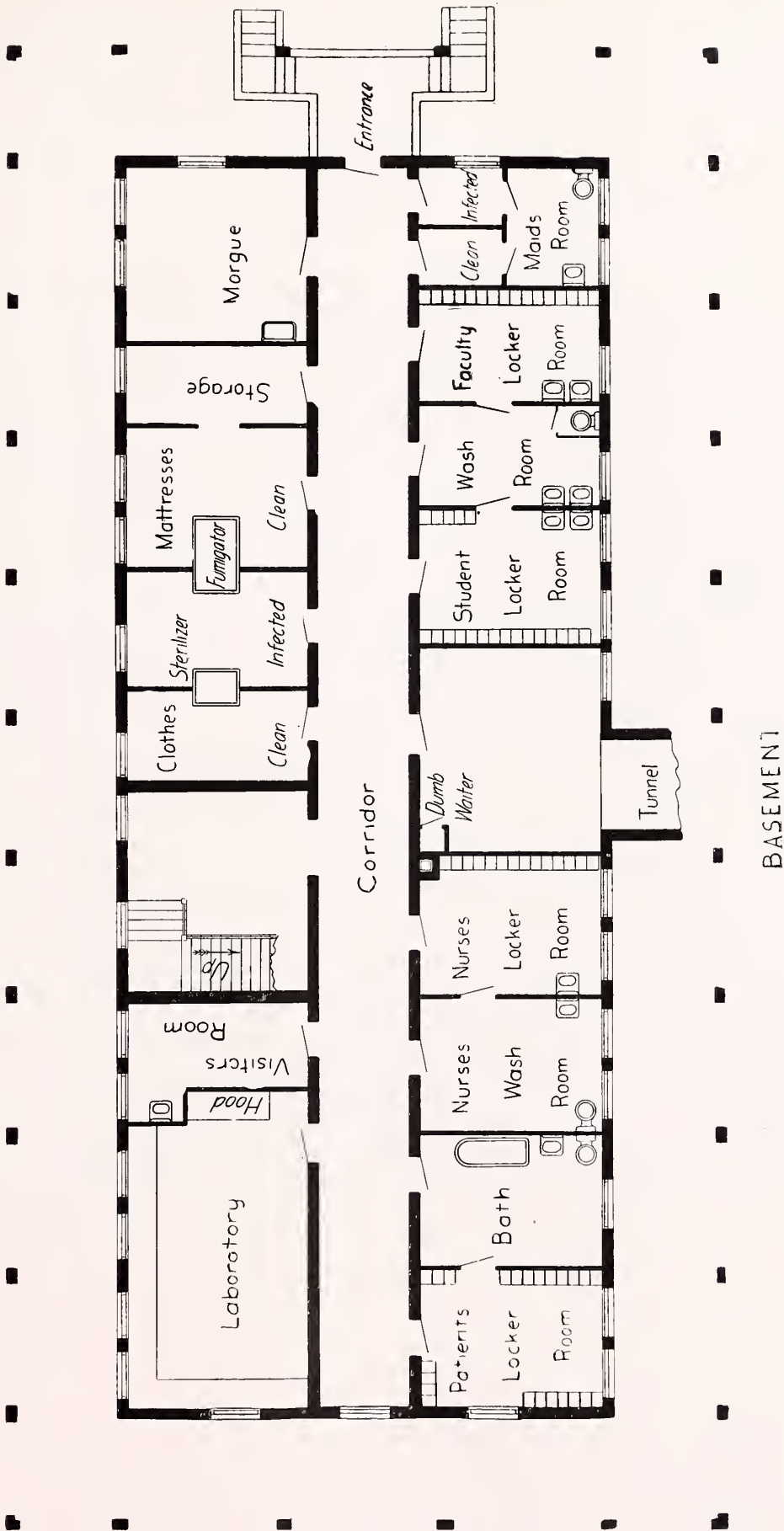
All dishes and other utensils used in the patients' rooms are immediately sterilized by steam or strong carbolic solutions. Patients' night clothing and bedding are placed in canvas receptacles and carried to the fumigating plant where they are sterilized, receptacles and all.

Extra precautions will be required of the nurses before they leave the building or retire to their rooms. In order to avoid a great danger of infection they will be prohibited from eating while on the wards. They will be served in their own dining room on dishes which have been boiled and with food that has not come in contact with any contagion. Because of a possibility of a slip in the technic and the acquiring of a contagious disease, illness of any kind among the nurses on duty will be carefully observed and if necessary the nurse will be isolated for observation.

The contagious service will not be made compulsory for any pupil nurse but, if history repeats itself, when the pupil nurse feels that if she carefully carries out a certain technic, there is very slight danger of contracting a contagious disease, she will be loath to forego such valuable experience.

One of the most valuable features of the hospital is the porch which can be made serviceable in many ways. Since each room opens upon the porch by a door through which a bed can be wheeled each patient is assured at all times of abundant open air treatment. Such a porch does away with the necessity of a pa-

Fig. 7.



tients' receiving and examining room, since each patient can be admitted directly to his room by way of this porch. Care will have to be exercised to keep porch patients with different contagious diseases from infecting each other. However, this can be prevented by means of movable screens which can serve as barriers.

It is felt that from a teaching standpoint the building will be particularly serviceable. It is proposed to demonstrate the contagious dis-

be thoroughly drilled in the principles of medical asepsis, so that he neither will convey infection from one patient to another nor contract it himself.

The student will be gowned when he enters the patient's room for fear of accidental contamination. Otherwise, unless he handles or touches the patient, a gown would be unnecessary. After the patient has been visited the gown is removed and the hands and arms carefully washed. The street clothing is then re-



Fig. 8. Photograph of central corridor, first floor. Although the patients' rooms open upon this central corridor, the latter will be as free from infection as those in a general hospital.

ease patients to the students in sections. It certainly seems ridiculous to demonstrate such diseases to students behind glass partitions for fear of infection during June of the senior year and then expect such students to care for patients with similar diseases July 1st, after the students have graduated and entered upon their practice. Just as the student, drilled in surgical asepsis, is taught how to wash his hands and refrain from touching anything surgically unclean during an operation, he will

sumed and the student can leave the building without fear of carrying contagion with him.

The porch will be found especially serviceable when a single patient or a series of patients must be shown to the whole class in too short a time to allow of section demonstration. By means of the porch and the glass doors and windows of each room such patients can easily be demonstrated to a class of a hundred or more students in a very short time.

When a room is emptied it will not be dis-

infected by fumigation. No part of the Isolation Building at Providence has ever been fumigated and the good results speak for themselves. If there be nothing to the theory that infection is air-borne, then the air of the room in which the contagious patient has been is as free from organisms as is that of any other room. To make the room free from the possibility of infecting another patient who may occupy it, the bedding, the mattresses, the bed, the walls as far as the patient can reach, in fact, everything which the patient could have touched must be disinfected. It has been shown that this can be very thoroughly done by scrubbing with soap and water. The room should be well aired before it is occupied, just as we would thoroughly air a room recently occupied by a patient with a non-contagious disease.

Let me say in conclusion that there will be cross infection under any system of the hospital care of contagious patients. There is cross infection when a separate hospital unit is employed for each contagious disease. Undoubtedly there will be some cross infection under the plan proposed, but it will be very slight provided those having to do with the hospital are careful as regards the technic. It is in your hands to demonstrate how in a teaching hospital a contagious pavilion with all kinds of contagious patients can be conducted with a minimum amount of cross infection.

DISCUSSION.

DR. HOWARD H. CUMMINGS: The new contagious hospital will be of great value to the senior medical students and will aid greatly in the work of the University Health Service. As many of you know, the Regents have provided a way whereby students, ill and needing hospital care, can be sent to the hospital and remain for sixty days if necessary. During this year we have had cases of measles, mumps, chicken-pox, whooping cough, diphtheria, Vincent's angina, tuberculosis and pneumonia. In the last two weeks, we have treated forty cases of epidemic sore throat. All of these patients could have been cared for in this hospital.

DR. JOHN A. WESSINGER (Health Officer): The matter will be governed by first come, first served. There may be a time when there are twenty-four patients in the hospital, all students, and when there is no room for city patients. We can't help that. First come, first-served. And there may be a time when the hospital is full of city patients and there is no room for students. In my opinion it will be some time before all rooms in the contagious hospital are filled at one time, and when that time comes, it will be time enough to make preparations for another building, or rather an addition to the present building.

DR. PETERSON (closing the discussion): The University authorities will soon submit to the city the scale of charges for patients treated in the contagious hospital. It goes without saying that these charges will be made as reasonable as possible, since the University is not trying to make money out of any portion of its Hospital. It must be remembered that on account of extra laundry and other things

needed in the care of contagious patients the cost of maintenance of this class of patients is higher than with the ordinary hospital patients. I am sure all patients, whether they be university students, city charges, or citizens of Ann Arbor, will be treated alike and that the administrative policy of this new pavilion will be satisfactory to all concerned.

SOME POINTS OF INTEREST IN INGUINAL AND FEMORAL HERNIA.

CYRENUS G. DARLING, M.D.

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(From the Surgical Clinic, University Hospital, Ann Arbor, Michigan.)

There are many theories concerning the formation of hernias and nearly all, more or less, contain a bit of truth. Andrews believes that a well developed abdomen rarely fails in its function of retaining its contents perfectly and it is strange that the strains put upon the abdominal wall should not more frequently cause a giving way of the wall. He believes that congenital defects and injuries are the cause of nearly all abdominal hernias.

Dr. Ochsner in a recent article on hernia in children holds to the theory of inside pressure and advances many good reasons in support of his belief. He admits, however, that a faulty development of the abdominal wall and an unclosed tunica vaginalis may be to some extent the result of inheritance. On the other hand Bernstein says the theory that intraabdominal pressure causes the hernia is probably overthrown today. Roser thinks that the sac is primary and the contents secondary.

Bernstein calls attention to the presence of depressions in the peritoneum, which he calls hernial anlage as being of great importance in the formation of hernias. He found that in a large number of bodies examined that 25.8 per cent. had a hernia or hernial anlage.

Linhard advances the theory that femoral hernia is frequently caused by lipomata advancing through the ring and pulling the peritoneum with it to form the sac.

Many other theories might be mentioned, but with the above in mind, during the last few months I have examined patients during the operation for the following:

First, for the presence of hernial anlage in the inguinal or femoral regions.

Second, the presence of lipomata preceding or associated with the hernial sac.

Third, any abnormal or unusual conditions associated with operations for the cure of hernia.

In median line operations when one has the hand in the abdomen depressions in the peritoneum can be easily detected at the site of the femoral or the inguinal openings or in both at the same time. I always make a point of examining the right side when operating for chronic appendicitis and in one instance this

habit was of value. This was in the case of a young man with a vague history of sudden and short attacks of appendicitis. I readily found the inguinal depression and passed my index finger into the canal. The tissues seemed to grasp my finger and suggested what might happen to an inclosed piece of bowel. Was not this patient suffering from repeated attacks of hernia instead of appendicitis? I removed both sac and appendix and did not experiment for an answer.

The results of these examinations coincide with those of Bernstein as about one in four contained one depression and in one case, four were found.

A young man twenty-one years old, a night watchman, while running, fell forward striking his right inguinal canal against a hard substance. There was some soreness, but not enough to interfere with lifting heavy bags the next day and the day following. Two days after the fall he noticed a swelling in the right side, not painful, but unusual. He went to see his physician about it and he diagnosed a hernia. It was irreducible and remained this way for about three weeks when one morning he found that it had suddenly disappeared. He reported this fact to his physician, who advised him to go at once to the University Hospital for operation.

At the Hospital he was asked as usual to produce his hernia, but to no effect. Curiosity and the desire to do the man some good, led me to operate in the absence of a hernial tumor. Nothing unusual was found until the inguinal canal was opened. Near the lower end of the canal in close relation with the cord was what appeared to be a hernial sac. When this was opened about thirty drops of clear fluid escaped. This was a cyst without an opening, but there was a prolongation of tissue, such as composed its wall, back through the internal ring. When this prolongation of tissue was opened, a small canal was found through which a grooved director could be passed into the abdominal cavity. The bruising of the lower end of this canal formed a cyst, which under sufficient pressure, could empty along the canal into the abdomen and showed conclusively that a very narrow sac from the peritoneal cavity was present, only requiring sufficient force from above to convert it into a hernia.

Another of a similar type was in a man of forty-five years old, with what appeared to be a right femoral hernia, which could be reduced by firm continuous pressure. After the skin incision, the fat was carefully separated from the sac so that it was entirely exposed. The sac was then opened and about two drams of clear fluid removed. Examination of the interior of the sac disclosed a small opening through which a grooved director could be

passed into the peritoneal cavity. This opening had a valve action, which allowed the fluid to flow freely from the abdominal cavity to the sac, but did not permit it to return.

It would seem that in some instances hydrocele of the cord might be formed in the same manner, especially in cases of congenital hernia, or even in cases that appeared some time after birth where the hernia had been reduced and a truss worn for some time. This case also presented the mass of subperitoneal fat, which is supposed to be carried down in front of the peritoneum.

Another case was that of a student, twenty-three years old, operated under local anesthesia for right femoral hernia. There was a large amount of fat in the space below the femoral ring in which the sac was buried. As the opening was very large, some of the fat, together with the stump of the sac, was inverted to plug the opening. The tissues were separated from the femoral vein for the purpose of exposing it so that it might not be injured by the suture and also for the purpose of securing a firm fascia, which when sutured to that on the opposite side of the opening would effectually and firmly hold the tissues in the canal.

In some of these cases of femoral hernia, the mass of fat was large enough to be called a tumor. In two cases it seemed like an independent tumor but careful dissection revealed within the remains of a sac. It would seem that in some instances the small elongated sac had never contained anything but fluid. Yet they must be considered as possibilities for the development of hernia if proper pressure is exerted from within.

I recently saw a case of strangulated femoral hernia in Professor de Nancrede's clinic, which presented some interesting points. The patient was a syphilitic, and very anemic with 35 per cent. hemoglobin. The hernia had been strangulated but a short time and no attempt had been made at reduction: The fat which surrounded the sac was quite edematous and the lymphatic nodes around the femoral opening showed the usual enlargement found in the secondary stage of syphilis. The edema was probably caused by the interrupted circulation and the anemia. There was no discoloration of the tissues.

In another case operated at the University Hospital, I followed the advice of Dressman, opening the sac close to the internal ring. On the posterior and outer side of the sac was a depression or diverticulum back of the neck of the sac, such as is found inside of the abdomen. It was about one-half inch deep. Though the hernia had no particular relation to this depression, it may have started in another depression lower down.

Can hernia be cured by wearing a well-adjusted truss? I operated upon a case where a truss had been worn for some time. When the inguinal canal was opened, the patient vomited, but nothing came down into the sac. This gave a fine exhibition of the way the transversalis and internal oblique muscles can hold the abdominal contents back when they are both impaired and the ring not expanded. This seemed like a so-called cure through wearing a truss, but the sac was readily found on the inner side of the cord. When opened, a very narrow neck was found not large enough to let the intestine through in its present condition. The other side was reported to have shown a hernia at one time and there was some difficulty experienced in producing a sac. When it was found there were two small cysts at the lower end definitely separated from the sac either of which might have increased in size if injured. A truss had never been worn on this side and the patient had no knowledge of the injury. I cannot explain the origin of these cysts.

A young Italian laborer, very muscular, was thrown forward. In the attempt to save himself from falling an inguinal hernia was produced. The hernia was immediately reduced and a truss applied but he was unable to wear it. He was operated for the hernia on the sixth day after the accident. The external oblique fascia was unusually firm and strong. The conjoined tendon was a real tendon and all the tissues seemed perfect. The sac extended down into the scrotum and was exceedingly thin. There was a well defined neck to this sac, which was red, infiltrated with some plastic exudate on the peritoneal side. There was no difficulty in reducing the hernia when the truss was applied. Was this a preformed sac, which was injured when the hernia was formed or was the change in the tissues due to injury from the truss which was in position but a few hours?

There is nothing new in my recorded observations of these cases, but like many instances in research, they may help to confirm or destroy the theory of some other investigator. The evidence is strong in favor of the preformed sac, in part at least, in most cases of inguinal and femoral hernia.

Linhard's theory, that muscular action first moulds a piece of fat through the femoral ring, which in turn pulls down the peritoneum thus forming a sac, may not be entirely true, but in a large number of cases the fat is there and in some instances the amount is large enough to be called a tumor.

A truss never cures hernia and except for temporary use should be abolished.

My most important point can be mentioned only for discussion. If hernia is a congenital deformity or is acquired through no fault of

the owner then the State should extend to him the privilege of an operation without expense, provided he is not able to pay for same.

DISCUSSION.

DR. REUBEN PETERSON: As a contribution to the subject discussed by Dr. Darling, I wish to cite my findings in several hundred cases of shortening the round ligaments after opening the inguinal canals. I cannot give my statistics off hand, but in quite a few cases hernial sacs were found where the opening into the peritoneal cavity was so small as to preclude the passage of any bowel through the internal ring. In a number of instances the sacs were cystic and the condition undoubtedly congenital.

DR. R. A. MCGARRY: In regard to the cause of hernia I would like to suggest that as a predisposing factor, embryonic development may play some part in it. An over development, or excessive amount of peritoneum, should be considered. In cadavers we often find conditions suggesting this, as an exceptionally long common mesentery, or long mesocolon.

REPORT OF CASE OF DERMOID CYST OF THE ORBIT, PRODUCING MARKED EXOPHTHALMOS, RELIEVED BY THE KRONLEIN OPERATION.

WALTER R. PARKER, M.D.

Professor of Ophthalmology, University of Michigan.
(From the Ophthalmic Clinic, University Hospital, Ann Arbor, Michigan.)

History.—The patient, Mrs. S., aged 30, came to the clinic January 21, 1914, complaining of prominence of the left eye. The family and personal history were negative. The left eye was noticed to be larger than the right about twenty years ago, but there was not much change until six years ago, when the exophthalmos rapidly became more marked till in a few months it assumed the present condition. About five years ago there was some pain in the eye and a progressive failure of vision began.

Examination.—Vision right eye, 5/4, left eye faint light perception. The pupillary reflexes were present. Tension, right eye, 20 millimeters Hg., left eye, 4 millimeters Hg. The right eye showed no external pathology. The left eye showed marked proptosis, measurement with the exophthalmometer reading, right eye 12, left eye 35. The anterior pole of the cornea was one-half inch below the level of a corresponding point of the right eye, and was nearly on the level with the bridge of the nose. The eyeball while not enlarged was nearly all anterior to the boundaries of the orbit which was filled with a somewhat slightly movable mass. Indefinite pulsation was detected above and there was indistinct fluctuation temporarily. The insertion of the external rectus was fairly well marked and its action could be plainly seen. The movements of the eye were limited in all directions, especially in abduction.

The lids were enlarged but freely movable. The upper lid at rest completely covered the cornea leaving an elongated aperture of about one quarter inch between the upper and lower lid borders.

The palpebral and ocular conjunctiva were only slightly congested. The fornix was occupied by loose vascular tissue showing distinct venous engorgement, and above were large venous plexuses. The cornea, iris and anterior chamber were practically normal.

Ophthalmoscopic Examination.—The right eye showed a few vitreous opacities but was otherwise normal. The left eye showed a distinct

Wassermann test reported positive by one test, negative by another.

Otolaryngologic Report.—Very large middle tubinate on left side. There were no signs of tumor in the nose. Transillumination shows nothing on account of tumor.

Diagnosis.—The slow growth of the tumor, absence of fluctuation, compressibility, and pulsation, together with the normal sinuses as shown by the otolaryngologic and X-Ray reports lead to the diagnosis of benign tumor situated entirely within the orbit—the exact nature of which not determined. (Figs. 1 and 2.



Fig. 1. Case of Dermoid Cyst of the Orbit before Operation.

secondary optic atrophy, with a pale avascular nerve head. The retinal vessels showed some tortuosity. There was a large area showing choroidal changes situated above the disc and a peculiar striated arrangements of pigment extending down and around the macula.

Blood and urinary examinations were negative.

X-Ray Report.—Maxillary and frontal sinuses open, unusually large size. On the left side, the orbit is filled with a relatively dense mass, causing a distinct depression of the lower floor and apparent elevation of the roof. Sphenoid cell is not involved. Some opacity in the neighborhood of the ethmoids. Sella turcica normal.

Operation.—A wide skin incision about three inches long, semicircular in shape, convexity forward, was made temporarily. A Krönlein resection of the outer wall of the orbit was done, a portion of the malar bone removed. The periosteum was dissected free from the outer orbital wall at its margin. The tumor mass was accidentally ruptured with the escape of a large amount of brown serous fluid causing a marked recession of the eyeball. By blunt dissection the whole of the cyst sac was easily freed from the periorbital and the muscle cone, except near the apex where it was more firmly adherent to the periosteum. The deeper contents of the sac consisted of a brownish liquid, and thin pultaceous material containing fragments

of hair. There was practically no orbital fat, and after the cyst was removed an unobstructed view could be had to the apex of the orbit. The wound was closed with silkworm and horse-hair sutures without drainage. The eyelids were united by a single suture.

Postoperative History.—The postoperative recovery was uneventful except for some edema of the lids and conjunctiva which was controlled by pressure bandage. The proptosis was reduced from the first. When the stitches were removed about one-half dram of straw colored fluid escaped from the incision near the outer canthus but no infection nor reaccumulation of fluid resulted.

an exceedingly rare occurrence. The commonest position is near the upper and outer angle of the orbit overlying the frontomalar or the frontotemporal suture. They are frequently found at the upper and inner angle of the orbit overlying the frontoethmoidal suture. When found lying at some depth in the orbit, they are external to the muscle cone, and closely connected with the muscles, the eyeball, the sheath of the optic nerve, or the periosteum. Although situated deep in the orbit they may have their origin at the orbital margin. Their contents are well known to consist of epithelial debris, sebaceous material and hairs. In rare cases a tooth has been found.



Fig. 11. Case of Dermoid Cyst of the Orbit after Operation.

The last examination shows ptosis from lack of cushion and eyeball markedly convergent and displaced down about 11 millimeters. The eyeball can be rotated just beyond the medium line. The eyeball is normal in appearance. (Fig. 3).

Pathologic Report.—Old dermoid into which there has been a hemorrhage. Destruction of the epidermis, with but a few dead hairs remaining in the wall. Much cholesterol.

Dermoid cysts are always congenital. They are regarded as fetal structures resulting from the invagination or involution of the external blastodermic membrane. They are by no means rare in the conjunctiva or at the orbital margin, but to find one in the orbit leading to an exophthalmos as in the case here reported is

As a rule, on account of their superficial situation, they do not displace the eyeball, but push forward the skin of the lid through which they can be readily felt as round movable tumors. When they are situated deep in the orbit the diagnosis becomes more difficult; especially is this the case if the cyst wall has become so tense as to make the pressure or absence of fluctuation indefinite. The history of the case will at once eliminate the possibility of a malignant tumor. Meningocele and encephalocele are two congenital conditions which must be eliminated as possibilities before operating. The first is a prolapse or hernia of the meninges with cerebrospinal fluid contents, projecting through a breach in the retaining skull wall. The second is the same with the addition of

brain substance prolapsing within the meningeal sac. Both are reducible and after reduction the bony margins of the aperture through which they came can be felt. Pulsation and hemic sounds can be elicited. The size and tension is variable. A dermoid cyst will present none of these phenomena. If the cystic nature of the tumor can be established, without pulsation, a mucocele having its origin

in one of the accessory sinuses must be considered as a possibility.

When the cysts are superficial, they can usually be extirpated without difficulty. But when the process extends deep into the orbit complete removal may be difficult. If the whole cyst is in the orbit, as was the condition in the case here reported, the best mode of procedure is a Krönlein's temporary resection of the external orbital wall. (Fig. 3).

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MAY.

Editorials

THE CLASSIFICATION OF DIGESTIVE DISORDERS IN INFANCY.

The classification of purely digestive disorders in infancy, or, in more recent terms, difficult feeding cases, has had a somewhat interesting history. These are now and should be carefully distinguished from those digestive disturbances accompanied by acute disease elsewhere in the body. The conditions, however, may often be the result of a previous acute disease.

With the advent of cellular pathology, an attempt was made to classify these disorders on the basis of post-mortem tissue changes. *Gastritis, gastro-enteritis, colitis, ilio-colitis*, were terms contributed at this time. Valuable as have been the contributions of pathological anatomy in this regard, they still fail to offer us any usable clinical basis for diagnosis and treatment.

Later, the development of bacteriology promised to furnish the desired classification. The first edition of Keating's Encyclopedia of the Diseases of Children, for example, appeared about this time, and the chapter on intestinal disorders was written from the bacteriological point of view. The end of this work is not yet written, but we have the Shiga-Flexner bacillus of dysentery streptococcus, pyocyanous, and gas bacillus diarrheas. These cases are not common, however, and bacteriology does not offer at all a complete classification of digestive disorders.

To-day physiological chemistry and the study

of the metabolism of growth and of disease offer the most promising fields for investigation.

The study by the methods mentioned has also developed a certain number of infectious and local diseases, whose symptoms follow closely those of purely digestive disturbance, for example, pylorospasm. Other less closely related pathologic conditions must be recognized as frequent causes of gastro-intestinal symptoms. Among these may be mentioned tuberculous, congenital syphilis and pyelitis.

There remains the great number of purely functional or nutritional disturbances in which clinicians have felt the greatest weakness in our system of classification. And since these cases form perhaps the largest single group in the general practice of pediatrics, this weakness has been a vital one.

American text-books have usually followed the anatomical nomenclature and classified the disturbances as, Gastric, Intestinal, or Gastro-intestinal, as the symptoms seemed more related to one or the other, or to be combined. This classification offered a convenient name for the symptoms, but practically nothing else. So far as treatment was concerned, such a diagnosis gave one almost no help.

Following the suggestion of Czerny and Keller in their work of "food injuries," Biedert suggested in 1899 that the logical method of classifying these cases was according to the food element which was not successfully digested and assimilated:

1. Fat disturbances.
2. Carbohydrate disturbances.
3. Proteid disturbances.

The offending food element was to be determined by the examination of the stool. This is possible because of the simple and limited diet of the infant. Knowing the characteristics of a normal stool on a certain diet, one can recognize the pathologic elements. To make a diagnosis of the difficulty on this basis one should have accurate knowledge of the composition of the food and then carefully examine the stools. Very important information may be obtained easily and quickly without the use of complicated or expensive apparatus, and there is no reason why every practitioner should not be able to make these observations.

This classification does offer real indications for treatment and diet, and within certain limitations is very useful clinically.

The latest classification to be offered is that of Finklestein. He maintains that our attention has been altogether too much localized on the alimentary canal as the seat of disease in these cases and that we have failed to recognize a real constitutional disorder in these disturbances of nutrition. He maintains further that there is practically no such thing as protein disturbance or intolerance. In addition to this,

he has worked out a food made from cow's milk, wherein the fat and sugar are low, and the soluble proteid is reinforced. This is known as *Eiweiss-milch*. Finklestein's classification is based on the degree which the malnutrition has reached as follows:

1. Weight disturbance.
2. Dyspepsia.
3. Decomposition.
4. Intoxication. (Cholera Infantum, *Enterokatarrh.*)

Weight disturbance indicates a beginning of nutritive disorder. *Dyspepsia* and *decomposition* represent respectively moderately and severe disorders. *Intoxication* represents the acute cases.

We have then a classification based on the anatomical distribution of symptoms, on the food element at fault, and on the stage and severity of the symptoms. The last two are especially useful and one will use both in reality, whatever terms he may apply to an individual case.

The use of some such classification and the making of an accurate diagnosis of the condition is an essential in the intelligent direction of these cases, and will be found of decided assistance in treatment.

HERBERT M. RICH.

THE RADIO-ACTIVITY OF POTASSIUM.

The discovery of the X-Rays in 1895 by Roentgen spurred on the scientific world in the closing years of the last century to new conquests. In 1896, Prof. Henri Becquerel discovered in uranium a new property of matter—radio-activity—a study of which has revealed such remarkable and important results not only in the domain of physics but also in chemistry and medicine. During the year 1898 three new radio-active elements were discovered, *thorium*, *polonium* and *radium*, the latter two by the Curies. In 1899, another important active substance was added to the rapidly growing list of elements possessing the property of radiation; this was *actinium*. In 1907, N. R. Campbell discovered that potassium and rubidium possessed radio-activity. This activity of potassium is shown not only by the element itself, whether of mineral or of vegetable origin, but also by all its compounds, which fact puts it in the list of the radio-active substances. For instance, the possession of radio-activity by quinine sulphate does not place quinine on the list, because only the sulphate compound is active, and then only after a preliminary heating.

There is more than one peculiarity that distinguishes potassium from the majority of the radio-active elements. In the first place, potassium emits only *beta*-rays. These are high

speed rays, and are individually equal in penetrating power to the swift *beta*-rays of uranium, but collectively their activity is about 1/1000th that of an equal amount of that element. Of course, uranium does not itself emit any *beta*-rays, but its product, uranium, does. It may be of interest to note that the *beta* particle of rubidium has only one tenth the penetrating power of that of potassium. Again, the ordinary radio-active substances have a heavy atomic weight; for instance, uranium has an atomic weight of 238, thorium 232, radium 226; but, on the other hand, potassium (39) and rubidium (85) are the only elements of light weight that with certainty are known to possess radio-active phenomena. There appears no explanation why, among all the light elements, potassium and rubidium alone should exhibit the property of the expulsion of high-speed particles. From analogy it would seem probable that these two elements are undergoing an atomic disintegration and transformation at a slow rate with the emission of *beta* particles.

The above facts are essentially all that is known of importance about potassium up to the present time.

The writer would like to theorize on the therapeutic application of this newly discovered activity of potassium and its compounds. But first of all I would like to call the attention of the reader to the attempts that are now being made to introduce into the body and blood-streams the radio-active products of uranium and thorium. This is being accomplished, more or less satisfactorily, by means of baths, compresses, inhalations, drinks, and by the intravenous route. As the rays of radium strike into and melt and destroy the cells of new growths, so, in like manner, does it not seem possible and even probable that the iodide salt of potassium, by means of its very penetrating *beta*-ray, can bombard and destroy syphilitic nodes and gummata. Also, there appears to be good reason why iodide of potassium is often used, apparently with success, in arteriosclerosis, simple goitre, and in cervical and other glandular enlargements. Again, the acetate and citrate salts of potassium are regarded by many practitioners as beneficial in the inflammatory and sclerosed conditions of acute and chronic nephritis. Nor do these compounds of potassium exhaust the list of those that have a peculiarly irritating or destructive action on the tissues; for instance, the nitrate, the chlorate, and the carbonates.

The comparative energy of the three different kinds of radiation may be stated as follows: *alpha* rays 90 per cent., *beta* 4 per cent. and *gamma* 5 per cent. Thus, the *alpha* particles are the most energetic, but they have very little penetrating power, and are stopped by the wall

of the container or even by a sheet of thin writing paper.

The penetrating power of these different rays may be roughly indicated by the following figures: *alpha* 1; *beta* 100; and *gamma* 10,000. the range in air is for *alpha*, from radium, with ordinary temperature and atmospheric pressure, 3.3 centimeters; from radium about seven; and from *thorium C* 8.6 centimeters (about $3\frac{1}{2}$ inches), which latter elements has the longest range for its *alpha* particle of any of the active substances. One of the most astounding phenomena connected with radio-activity is the enormous speed with which the different rays are shot out from the atom, which until recently was supposed to be indivisible. The *alpha* particle is emitted with an average speed of one-fifteenth of that of light, and the *beta* particles have a maximum velocity nearly equal to that of light, while the *gamma* rays move at the almost inconceivable rate of light—185,000 miles per second. As the *beta* particles are quite penetrating, and move through the air with an average range of 250 centimeters (100 inches) and are stopped by about two millimeters of lead ($1/12$ inch of metal), it may be assumed that the *beta* rays will encounter no difficulty in penetrating the thickened wall of the largest arteries, but also, without doubt, are able to attack and bombard through the capillaries all pathological cells and new growths, on which abnormal tissue the rays seem to have a selective action. *Gamma* rays are very penetrating, some of them having been detected by the electroscope after having passed through 30 centimeters (1 foot) of iron.

As sodium is closely related, clinically as well as chemically, to potassium, it would be naturally inferred that the former element possesses at least some of the radio-active phenomena. Physicists, however, have as yet been unable to find any sign of radio-activity in any of the metals of the alkalies, except *rubidium*. Nevertheless, geologists are, according to some reports, inclined to believe that there is some evidence of the sodium in the ocean having undergone, through the forgotten ages of the past, a slow atomic transformation.*

DANIEL CONBOY.

MACCABEE FREE BEDS—THEIR ABUSE.

In our going and coming among the profession of the state we have frequently heard expressions—rather emphatic—condemning the Maccabee Free-Beds. The objections raised are that many patients are admitted on these so-called “free-beds” who are perfectly able to

pay for their hospital care and surgeon's fees; in addition, that these patients are not entitled or worthy of this charity work and service; that these lodges are using the free-bed service as an inducement for securing members; that people when learning that they are in need of a surgical operation join the lodge for the sole purpose of being admitted upon these beds, thus avoiding payment of hospital and surgeon's fees; that while these free-beds were purposely and primarily intended for the care of worthy poor, still they admit and care for patients abundantly able to pay; that surgeons in charge of these free-beds are working an injustice upon the general practitioner and other surgeons in thus being the “dupe” of this lodge in operating upon patients who are not entitled to such charity service; that instances have occurred wherein patients have entered private rooms, paid for the difference in price between the free-bed and the private room, employed special nurses and the surgeon has operated upon them without receiving a fee—while the patient wore her diamond rings. These and similar statements regarding the abuse of this free-bed service have reached us from time to time.

Unhesitatingly we condemn every physician, surgeon and hospital who aids and abets such transactions. The plan, the method, the entire procedure is working an injustice upon every doctor, surgeon and hospital that is not connected with such a free-bed arrangement. We desire to condemn it as emphatically as possible. Grant such privileges to every worthy poor and indigent patient, unable to pay, most assuredly. But be *sure they are worthy and poor*—don't take the word of the lodge representative for it, investigate yourself the merits of every case.

A stop must be put to this practice and we propose lending our influence to secure the abandonment of such a travesty upon the doctors and surgeons of Michigan. We are sorry that we have not kept a record of the cases reported to us in which the patient did not merit this charity and in which the attending physician and surgeon have been *robbed* and *cheated* out of a reasonable fee that was within the means of the patient's ability to pay.

We are making the request, so that we can show up the men and institutions fostering and abetting such condemnable practices, for every doctor who knows of such a circumstance to supply us with the patient's name, residence, condition, financial status, hospital to which she went and the name of the surgeon who operated “free” and any other items that would be of interest in showing up that particular instance. This data we propose publishing in *The Journal* together with the hospital and surgeon's name so that the profession at large may

*E. Rutherford: Radio-active Substances and their Radiations. 1913.

M. Curies: Traité de Radio-activité. 1910.

know these men and institutions and when they have cases to refer they will not send them to these men who are robbing them of just fees and imposing upon the entire medical fraternity. *We promise not to publish the name of the informant* but insist that he sign such statement so that we may be prepared to answer any challenge the accused may make. We propose publishing facts and to investigate each circumstance and thus be eminently fair.

We ask your co-operation to root out this evil and assist us in gaining the necessary data to ascertain how extensive the practice has become. Certainly the numerous instances in which these complaints have reached us warrant *The Journal* to undertake the effort to secure the abatement of this underhanded work. The June issue is open for your statement.

THE OFFICIAL CALL FOR PAPERS.

Members desiring to read a paper before any section of our State Society during the sessions of the Annual Meeting at Lansing, Sept. 10-11, are hereby requested to at once communicate their intentions to the section officers. In order that definite arrangements may be made, the officers request that they be furnished with the title of the paper, a brief synopsis of its contents and whether or not it will be illustrated.

The officers of the various sections are:

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Benj. A. Shepard, Secretary Kalamazoo

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Editorial Comments

The Medical Council, with advertising pages stained with copy of Pepto-Mangan, Prunoids, Anasarcin, Campho-Phenique, Burnham's Soluble Iodine and other equally as undesirable and unreliable advertising matter, announces in its April number that it is going to make a "diagnosis of the unrest and agitation that is disturbing the medical profession." The editor proposes to reach such a diagnosis by making a series of hurried visits to several localities and to sum up his conclusions from the observations he thus makes and thereby hopes to attain

a final conclusive opinion as to "what's wrong."

Incidentally it is stated that the editor has done considerable traveling in sanitary investigations. This is the first intimation that we have received that the cause of the unrest was due to "inefficient sanitation" and that a sanitary expert's service were required to propound a solution of the difficulty.

In the same issue the visit to New York is described. The description commences with a criticism of the Council on Pharmacy and Chemistry of the A.M.A.; recapitulates the tale of woe of several pharmaceutical manufacturers who do the "sob-act" because the Council on Pharmacy and Chemistry has compelled them to be honest in regard to their manufactured products and who bemoan the fate that has thus befallen them. A few generalities are indulged in in discussing the National Formula Propaganda, Hospital and Dispensary abuses; twelve lines are devoted to Sanitation, a column on New York physicians which does not reveal any unknown traits, and a quarter of a column of business comment with a closing statement that *The Council* has a large list of subscribers in New York.

When we commenced to read this article we thought that there was about to be revealed to us an inside view of the metropolitan profession, its foibles, weaknesses, scandals as well as a word picture of its better qualities and the underlying cause that produced each condition. Yes, we have been disappointed for we failed to find any comment as to the cause of "unrest" in the profession and note that the only "unrest" that existed occurred in the manufacturer's domain. A similar article pertaining to other districts to be visited will cause us to feel that the end sought will not be attained—except probably in the Chicago Medical Society.

If our contemporary would only pluck the beam out of its own eyes it might be able to observe some of the causes for "unrest" in its very pages, and, seeing we hope that he will cleanse them from much that has been demonstrated unclean. By so doing he will have taken a long step toward pouring oil upon the troubled waters of a profession that cannot help but be restless under the conditions that govern many medical publications. It makes us restless to think that a publication can try to "get-a-way" with such "rot" and in the disguise of a would-be reformer, play to the galleries where sit the spectators already wearied from observing misbranded reform propagandas emanating from those who are still "un-clean."

The "Go To Church" movement, due to press publicity, has been carried out more or less successfully in several cities. Apropos of this slogan, probably plagiarizing it, we are venturing the suggestion: That every society se-

lect one of its regular meeting dates and adopt for its slogan—"Go To The Medical Meeting." Then let the energy be exerted to get every reputable and eligible doctor in your county, be he member or not, to attend this meeting. Besides arranging for an instructive scientific program have the program committee arrange for two or three five minute talks in which those present will be told the "How, Why and What For" it is essential for every doctor to belong to his county society, attend and take part in every meeting that his society holds. By means of such an exhibition, universal throughout the entire state, much new life, enthusiasm and efficiency will be instilled in our component organization. Who's first?

We ask but fifteen minutes of your time to peruse our advertising pages carrying none but honest advertisements from reliable business firms and manufacturers. Here and there you will undoubtedly note something that you need and intended to purchase. Send your order to those who patronize *your Journal* and also tell them why you are doing so. These firms will accord you courteous and honest treatment and their prices will be equal to those of any competitor who is not advertising in *your* publication. *Your* patrons are entitled to your patronage.

The Annual Meeting of the American Medical Association will be held in Atlantic City, June 22 to 26. Dr. Vaughan will become the active president of the Association at that time. Michigan should be well represented upon the registration rostra.

In a recent medical publication we noted a doctor's (?) article in which this statement was made: "The function of the appendix is to secrete the lubricant for the bowel and its removal is equivalent to causing the patient's death inside of seven years." To properly express our opinion of such "mush" would compel us to use words that would not look well in print. The wonder also is that any editor would countenance the publication of such a statement. Someone has remarked that every death from appendicitis might have been prevented and that when death did result either the patient, his family and friends or the attending physician is at fault and accountable for the fatal termination. There is no medical treatment for appendicitis. Surgery—early—offers the only haven of safety.

"Clinic Week" and "Clinics" have proven themselves to be profitable occasions for all physicians. It is not always essential that they be national or statewide in their scope. Commu-

nity Clinics can certainly be made extremely instructive and profitable.

To attend a national or state clinic demands that a doctor give up his practice for a week and in addition expend a considerable amount of money for hotel and traveling expenses. To attend the meetings of the national and state organization and the now recognized National Clinic Week calls for the spending of a goodly amount of money. Admittedly it is a profitable investment and one which we desire to still further encourage. However, we are of the opinion that a little more devotion of time by all of us to Clinical teaching and study will be of value and profit to every physician, and so we recommend the conducting of two or more Community Clinics each year and which may be attended by every physician in the community with a smaller expenditure of time and money.

Detroit already holds such a clinic—The Clinic of the Alumni of the Detroit College of Medicine and Surgery. Grand Rapids, Saginaw, Bay City, Flint, Kalamazoo, Traverse City, Cadillac, Big Rapids, Petoskey, Marquette, Calumet, Escanaba and several other cities may readily establish such community clinics. Two, three, four or five days may be filled with special work in the several fields of medicine and surgery and the evenings may be profitably devoted to papers and discussions. If desired, outside men may be readily secured to conduct some of the work. We feel the suggestion worth the trial.

Although our Annual Meeting is still some months distant it is well to commence thinking about it and when planning your summer vacation do not forget to arrange so that it will be possible for you to be in Lansing on September 10th and 11th.

Volkman's contraction, or more properly, an ischemic myositis of the muscles of the forearm is becoming more common as a distressing sequelae to fractures of the radius and ulna. Murphy has rather aptly termed it a "surgeon's lesion" and ascribes its frequency as being due to the placing of a tight bandage or cast on the arm and thereby causing a compression myositis which is followed by cicatricial contraction. In discussing this condition Murphy states: "It is never a nerve lesion. It is never a traumatic lesion. It is always a surgeon's lesion. The damage is always done during the first forty-eight hours of the compression." The contraction of the tendons is not noticed until several weeks have elapsed. Well may we ask how can this be avoided—by being constantly alert and never apply a fixed dressing so tightly as to cause compression that will be intensified by the subsequent swelling and edema that attends

the original trauma. Should the patient, in spite of our precaution, complain of severe pain or notice extensive swelling and circulatory interference instruct him to not delay in calling on you or if that is impossible and you cannot reach him in a few hours then instruct him to immediately loosen all the dressings. This is the only measure that will prevent myositis and subsequent tendon contraction.

Unless you patronize our advertisers you cannot hope or reasonably expect to receive a \$3.00 *Journal* for \$1.00. If you will help us boost a little by trading with our advertisers we will soon be able to send you a \$5.00 *Journal* for \$1.00. Which shall be?

In this issue will be found the names of those who have been placed on the suspended list by reason of their non-payment of their dues. This list was not published in the April number for the very reason that some 500 names and dues were received on the 31st day of March and having thus paid before April 1st it would have been an injustice to have published their names as being delinquents.

We dislike very much to publish the names of the delinquents this month for we feel that the majority of them have simply been careless and thus permitted their dues to lapse. We have, however, no alternative and these men are now without the protection of the Defense League and will continue to be so until their dues are received and should they be sued for any services rendered to a patient from April 1st until they pay their dues they will not be entitled to protection for such suits even though they should again be re-instated; their *Journal* was discontinued with the April issue and they have been reported to the Secretary of the A.M. A. as being dropped for non-payment of dues.

We sincerely hope that they will take immediate steps to secure their reinstatement. They are forfeiting their affiliation with an organization that nets them greater returns than any other organization.

The American Medical Association's Committee on "Conservation of Vision" have issued ten pamphlets entitled as follows: The Eye and Its Functions; Eye-Strain; Auto-Intoxication and the Eye; Trachoma in Eastern Kentucky; The Relation of Illumination to Visual Efficiency; Wearing Glasses; Industrial and Household Accidents to the Eye; Schoolchildren's Eyes; Lenses and Refraction; and Care of the Eyes. They are written for distribution among the public and contain much that is of value and instructive. They may be obtained from the Association's office by those interested in this work. They demonstrate the excellent work that is being done by the committee on

Health and Public Instruction. This same committee has also ready for distribution the following pamphlets: Control of Cancer; The Municipal Regulation of Milk Supply; Child Culture the Function of Organized Medicine; and Death and Blindness from Wood-Alcohol Poisoning. You will do well to secure these publications for distribution in your community.

FOR RENT is the sign that is tacked up on the building formerly occupied by the Michigan College of Chiropractic that was located in Grand Rapids and turned out pseudo-doctors in three months. Thanks to the amendments passed by our recent legislature this school has been compelled to close-up. We wonder what its graduates now think of their profession.

The Bulletin of the Calhoun County Medical Society is the latest addition to the list of Bulletins issued by our County Societies. It is a four-page folder, gotten out in neat and attractive style and of credit to its editor, A. F. Kinsley, the secretary of the society. This society has also abandoned holding quarterly meetings and will now meet semi-monthly. The impression that we gained from a recent visit is that this society will soon be one of the banner ones of the state and in which membership will be a valuable asset to every doctor in Calhoun County.

MEMBERS SUSPENDED FOR NON-PAYMENT OF DUES.

Herewith we are publishing, in compliance with the instructions of the House of Delegates, the list of members whose dues were unpaid on April 1st. According to these instructions their names have been removed from our roll of membership; their names were removed from *The Journal* mailing list and *The Journal* discontinued on April 1st; they are without protection of the Defense League and forfeit the right to receive protection should any action arise against them for services rendered during their period of suspension; they have been reported as suspended to the Secretary of the American Medical Association and so forfeit their rights in that organization.

The total number thus suspended is 389, or 6½ per cent. of our entire membership. We have endeavored to be very careful in checking over our list and should perchance, any errors occur we will be only too glad to correct them if brought to our attention.

It is a disagreeable task to prepare this copy for publication. We dislike very much to publish this list because we felt that the vast majority of these names are on the list solely by reason of carelessness in not promptly paying the required dues, ample notice having been given by local secretaries and by reminders published in *The Journal*.

We plead that those whose names appear on this list immediately take the necessary steps to secure their reinstatement. Of course they will not see this list because their *Journal* has been discontinued. We request every member to peruse the list of his

county and note whether or not any of his friends' names are listed. If so please make it a point to speak to him about it and induce him to reinstate himself.

ALPENA COUNTY		GOGEBIC COUNTY	
Heurys, Wm.	Miller, R. R.	Kelly, E. H.	Paradise, R. A.
Jackson, John S.	Purdy, John W.	Madajeski, E. H.	Pierpont, D. C.
Komoracki, Anton	Wilson, John—6	O'Brien, W. J.	Pinkerton, W. J.
		Walsh, J. L.—7.	
BARRY COUNTY		GRAND TRAVERSE-LEELANAU	
Duller, D. E.	Rigterink, J. W.	Carrow, F.	Miller, E. A.
Lowry, G. W.	Sheffield, F. G.	Johnson, G. M.	Payne, W. M.—4
McIntyre, C. S.	Shilling, F. F.—6	GRATIOT COUNTY	
BAY COUNTY		Pankhurst, C. T.—1	
Ballard, S. L.	Horne, G. E.	HILLSDALE COUNTY	
Brown, F. W.	Keho, John A.	Bates, J. A.	McFarland, O. G.
Dumont, V. H.	McNaughton, G. P.	Clobridge, C. E.	Whelan, B.—4
Gale, H. M.	Ovenshire, B. H.	HOUGHTON COUNTY	
Gallagher, M.	Suylanat, C. C.	Abrams, J. C.	Maas, R. J.
Gustin, S. E.	Urnston, P. R.	Bourland, P. D.	Matchette, W. H.
Warren, E. C.—13		Edwards, S. A.	Orr, G. W.
BENZIE COUNTY		Gregg, W. T. S.	Rhines, J. J.
Covey, E. L.	Edmunds, G. O.	Joy, H. M.	Sutton, D. C.
Kinne, H. J.—3		Krueger, O. E.	Van Dyke, W. H.
BERRIEN COUNTY		McDonald, N. S.	Vercellini, C. E.
Allen, R. C.	Helkie, W. L.	MacQueen, D. K.	Whitten, W. P.
Bartlett, H. G.	King, L. A.	McNaughton, P. D.	Wiley, R. E.—18
Balknap, F. R.	Martin, F. H.	HURON COUNTY	
Boote, V. R.	Rosenberry, A. A.	Frenzel, Otto	Lyman, M. R.
Gregg, U. S.	Schmiedener, Hattie A.	Friedlander, B.	Rexford, W. K.
Harrison, L. H.	Yeomans, T. G.—12	Jackman, J. W.	Sebille, L. J.
BRANCH COUNTY		Wiley, F. C.—7	
Heator, J. J.	Whitmore, H. W.	IONIA COUNTY	
Wood, D. H.—3		Alton, R. W.	Hargrave, F. A.
CALHOUN COUNTY		Braley, F. W.	Martin, F. W.
Dockry, W. E.	Gibbs, M. S.	Strahan, D. H.—5	
Durrie, Anna	Morse, J. F.	INGHAM COUNTY	
Risley, E. H.—5		Branch, G. F.	Cushman, M. L.
CASS COUNTY		Bruegel, O. H.	Shumway, F. W.
Bonine, J. G.	Loupee, S. L.	Cochrane, W. A.	Wade, G. B.—6
Fenstermacher, C. C.	McCutcheon, W. C.	ISABELLA-CLARE	
Holland, Marion	Phillips, H. H.	Brondstetter, M. F.	Powers, C. J.
Kelsey, J. H.	Squires, D. E.—8	Stanton, C.—3	
CHARLEVOIX COUNTY		JACKSON COUNTY	
Wilkinson, A. M.—1		Hackett, T. E.	Smith, J. C.
CHEBOYGAN COUNTY		Townsend, G. H.—3	
Chapman, W. E.	Stringham, J. R.	KALAMAZOO COUNTY	
MacGregor, A. B.	Stringham, W. R.	Cornell, A. B.	Lewis, H. F.
St. Armour, S. A.	Tweedle, C. B.—6	Heasley, W. H.	Osmun, E. D.
CHIPPEWA COUNTY		Henwood, A. E.	Ransom, T. H.
Campbell, E. H.	McCandlass, A.	Hobbs, E. J.	Rowe, M. J.
Ferguson, J. A.	Townsend, W.	Lee, J. W.	Welsh, F. J.—10
Gibson, R. E. Lee	Yale, I. V.—6	KENT COUNTY	
CLINTON COUNTY		Apted, Ralph	Henry, Jas. Jr.
Abbott, G. T.	Luton, F. E.	Beel, H. J.	Herrick, O. E.
Hoover, H.	McGilleuddy, Jas.—4	Breece, R. C.	Hilliker, J. B.
DELTA COUNTY		Chadwick, H. J.	Hirschberg, F.
Kee, D. N.	Lemire, W. A.—2	Chappell, L. E.	Holcomb, J. N.
DICKINSON-IRON		Dales, E. W.	Hooker, C. E.
Alving, O. E.	Crowell, J. A.	Earle, E. C.	Kelley, C. M.
Collins, C. D.	Dockery, M. F.	Easton, G. A.	Kinsey, F. C.
Remillard, J. L.—5		Edie, J. O.	Koon, T.
EATON COUNTY		Fairbanks, C. H.	Northrup, Wm.
Hixon, A. N.	Rees, H. B.	Ferguson, J. E.	Patterson, A. J.
Jones, F. A.	Snell, D. M.	Gordon, T. D.	Roller, L. A.
McLaughlin, C. L.	Wasson, C. B.	Grimes, J. N.	Schurtz, Perry
Weaver, F. A.—7		Heasley, J. A.	Sinclair, D. S.
EMMET COUNTY		Sinclair, M. C.—29	
Crotser, L. S.	Moorman, E. R.	LAPEER COUNTY	
Risk, R. A.—3		Boulton, A. O.	Suiter, J. P.
GENESEE COUNTY		Chapin, C. D.	Thomas, J. O.
Gogshall, B. W.	Jenne, B. H.	Snow, S. A.	Traphagen, L. A.—6
Houton, J. H.	Pifer, L. J.	LENAWEE COUNTY	
Robb, G. W.—5		Clemes, W. T.	Lochner, G. M.
		Conklin, H. R.	Morden, W. S.
		Hendershot, E. E	Ross, G. W.
		Hyde, C. C.	Tallman, C. R.
		Jewett, W. E., Sr.,	Towne, L. S.
		Kirkpatrick, C.	Tuttle, J. L.
		Lamley, G. H.	Wilcox, A. E.—14
		LIVINGSTON COUNTY	
		Cunningham, J. E.	Sigler, C. L.
		Pearson, A. H.	Sigler, H. F.—4
		MACOMB COUNTY	
		Roberson, G. G.	Wiley, H. H.—2

MANISTEE COUNTY

Keough, E. M. Kirkland, R. J.—2

MARQUETTE-ALGER

Anderson, A. H. Gourdeau, A. E.
Bergeron, J. D. Ptolmy, H. H.—4

MASON COUNTY

Heysett, F. W. Martin, W. G.
Switzer, G. O.—3

MECOSTA COUNTY

Walker, C.—1

MENOMINEE COUNTY

Philips, B. T.—1

MONTCALM COUNTY

Miller, N. W. Sayles, C. C.
Townsend, G. S.—3.

MUSKEGON-OCEANA COUNTY

Black, B. F. Eastman, B. R.
Blanchett, V. J. Keyes, L. W.
Busard, R. I. Powers, L.
Smith, A. A.—7

NEWAYGO COUNTY

Boyd, J. L. Rolison, S. B.—2

OAKLAND COUNTY

Brannock, A. L. Mack, C. W.
Chapman, H. S. Manley, Ora.
Chapman, J. B. Robb, S. B.
Drake, G. W. Shaw, N. T.
Foley, C. J. Ulothe, M. J.
Galbraith, S. E. Van Sickle, J. R.—12

O. M. C. O. R. O.

Abblett, J. H. Keyport, C. R.
Insley, S. N. Kiehl, H. B.
Wood, R. H.—5

ONTONAGON COUNTY

Cornell, H. D. Porter, W. K.—2

OSCEOLA COUNTY

Barnard, J. H. Nolte, H. S.—2

OTTAWA COUNTY

Mabbs, J. A. Vandenberg, W. J.
Presley, W. J. Walkley, W. S.
Smith, F. D. Winter, W. G.—6

PRESQUE ISLE

Campbell, A. W. Shirley, V. W.—2

SAGINAW COUNTY

Dickinson, W. L. DeFoe, W. A.—2

SANILAC COUNTY

Smith, R. Wiers, W. W.—2

SCHOOLCRAFT COUNTY

Burr, G. C.—1

SHIAWASSEE COUNTY

Bailey, A. L. VanLiew, V. C.
Benjamin, W. O. Watts, F. A.
Wilson, P. S.—5

ST. CLAIR COUNTY

Clements, F. W. Dunn, R. J.—2

TUSCOLA COUNTY

Dunning, E. C. Walworth, G. W.—2

WAYNE COUNTY

Adams, J. R. Kimsey, J. A.
Applebee, W. King, H. S.
Baker, Wm. R. Kipp, A. W.
Baskerville, R. J. LaFerte, D.
Beall, J. A. Lawton, T. M.
Beattie, R. Lee, A. C.
Binning, D. E. Leonard, C. B.
Brown, G. V. Lukaszewski, S. J.
Buesser, F. G. McArthur, N.
Burge, C. W. McClelland, R. J.

Burke, F. B.
Clark, D. R.
Crittenden, C. L.
deBlois, R. F.
Dick, K. W.
Donald, W. M.
Dunn-Roe, Anna T.
Edwards, E. P.
Eede, E. E.
Estabrook, B. U.
French, A. L.
Garber, J. N.
George, C. H.
Goodenow, R. J.
Hamilton, J. T. S.
Hartman, L. B.
Henderson, E. W.
Herbert, L. H.
Herman, S. J.
Hoag, A. B.
Howard, J. J.
Hurst, Alice
Imrie, A. W.
Inglis, David
Jennings, C. G.
Johnson, A. H.
Johnson, R. K.
Judd, C. H.
Kenning, Thos.
Kestell, J. R.
McFall, G. H.
McMahon, G. H.
Neubauer, B. B.
Pfeiffer, R. L.
Potter, W. A.
Przybylowski, F. J.
Radzinski, A. J.
Roach, J. J.
Roberts, F. J.
Ross, W.
Rothchild, D.
Rutledge, J.
Schureman, J. W.
Sherman, A. T.
Sibley, C. P.
Sill, J.
Sipe, G. K.
Slevin, J. H.
Smith, C. A.
Spitzley, W. A.
Stafford, C. M.
Stirling, A. M.
Thomas, L. C.
Voorheis, W. J.
Walker, T.
Warner, J. H.
Watson, C. E.
Willson, J. W.
Wilson, W. A.
Zimmer, L. L.—80.

WASHTENAW COUNTY

Benedict, W. L.
Breakey, W. F.
Cumming, J. G.
DeNancrede, C. B. G.
Gates, N. A.
Hopkins, W. E.
Huber, G. C.
Keating, J. W.
Loree, I. D.
Oberlin, E.
Palmer, G. W.
Pettis, J. H.
Schmidt, H. W.
Tefft, F. E.
Williams, F. E.
Woodbridge, C. N.—16.

Deaths

Dr. Walter Colin of Barryton, Mich., died during the month of January, the cause of death being pernicious anemia. Dr. Colin had been a member of the Mecosta County Medical Society and of the Michigan State Medical Society since 1905.

Dr. Herbert Otto Statler

The sudden death of Dr. Herbert Otto Statler shortly before five o'clock Sunday morning, March 29, from angina pectoris was a shock to the city, as Dr. Statler was one of the best known physicians of Kalamazoo, having served as Health Officer and having been associated with many charitable organizations.

While Dr. Statler knew that he had heart trouble, he did not make the fact known to his family or friends, and had apparently been in good health. About three-thirty o'clock Sunday morning he was called up in regard to a patient whom he said he would go out and see if necessary. It was only half an hour later when he was himself taken ill. Medical aid was summoned at once, but life was gone before the family fully realized his critical illness.

Herbert O. Statler was born July 15, 1868, in Schellburg, Pa. He was graduated from the medical department of the University of Michigan, April 6, 1889, coming to Kalamazoo shortly after. He was assistant physician at the Michigan State Hospital, during which time

he met Miss Helen Curtenius, daughter of Mrs. Kate W. Curtenius, whom he married March 29, 1899.

Dr. Statler took his post-graduate course at Johns Hopkins University, Baltimore, and later did special medical work in New York and Boston. He was a member of the Sigma Phi fraternity at the University of Michigan, a member of the Kalamazoo Academy of Medicine, and of the Kalamazoo Country Club.

Besides his widow he leaves two children, Master Frederick and Miss Wilhelmina Statler.

Members of the Academy of Medicine met in special session March 30, 1914. The following message of condolence was presented by the Memorial Committee.

"In memory of Dr. Herbert O. Statler:

"The Angel of Death has again entered this society and taken one of its most respected members. In the sudden and untimely death of Dr. Herbert O. Statler the Academy of Medicine has suffered a distinct loss. A man of high ideals both as physician and layman. As a physician, he was conscientious, always giving to his patients the most careful and skillful attention; not hasty in judgment; conservative in the practice of medicine and surgery, his opinion was much valued. As a layman he was a gentleman.

"No greater praise can be given him than that those who knew him best loved him most. He had a keen appreciation of nature and with his family and friends spent much time in the great out-of-doors.

"His death comes as a terrible shock, as he had not been ill, and coming so suddenly we are reminded of the uncertainty of human life; a little gleam of time between two eternities.

"To his wife and children we extend our sincere sympathy in this untimely passing away of a dear husband and father.

Signed,

Orton H. Clark

E. J. Bernstein

W. A. Stone

S. R. Light

Committee."

Dr. D. B. Cornell of Saginaw died April 2nd, at his home, the cause of death being blood poisoning.

Dr. Cornell was a well known eye, ear, nose and throat specialist. He located in Saginaw in 1889 and has been a practitioner there since.

He leaves a wife and one daughter.

Dr. Wm. D. MacQuisten, one of the best known physicians of East Detroit, died April 6th as a result of a disease of the throat.

He was graduated from the Michigan College of Medicine in 1892, and had been a practicing physician ever since.

State News Notes

A cordial invitation is extended to all the members of the medical profession in Michigan to attend the annual clinic week of the Detroit College of Medicine and Surgery—May 27th to June 4th. A nominal fee of two dollars to cover necessary expenses, admits one to all the clinics, lectures and all other functions of a social or amusement nature. The committee in charge have secured the presence of men of national reputation to conduct certain of these clinics. Those expected to be present are: Dr. Martin H. Fisher, Department of Physiology, University of Cincinnati; Dr. William F. Braach, Rochester, Minn.; Dr. John A. Fordyce, New York; Dr. W. Wayne Babcock, Philadelphia; Dr. Robert H. Halsey, New York; Dr. F. W. Archibald, Montreal; Dr. Hugh McCallum, London; Dr. Channing W. Barrette, Chicago; Dr. Charles L. Mix, Chicago; Dr. S. G. Gant, New York City; Dr. T. W. Pottenger, Monrovia, Calif. Such an array of invited clinicians conveys the assurance that the week will be a most profitable and instructive one. Here is an excellent opportunity for the physicians of Michigan to witness the work of the leaders in the Detroit profession as well as that of the invited guests. Plan to be in Detroit during the entire clinic week.

At a meeting recently in Detroit, a branch society of the American Urological Association was organized consisting of the following members:

Dr. F. W. Robbins, Dr. W. P. Manton, Dr. Geo. Potter, Dr. Wm. E. Keane, Dr. W. C. Martin, Dr. John Dodds, Dr. W. H. Plaggemeyer, Dr. M. A. Feclheimer, Dr. Theo. H. Smith, Dr. W. H. Hutchings, Dr. F. H. Cole.

Dr. Rudolph J. E. Ogden of Cadillac will sail for Europe on the steamer Imperator, May 16th. He will be absent for a period of six months during which time he will be enrolled as a resident student in Anatomy and Pathology and Clinical Surgery in the University of Berlin.

Dr. A. A. Solberg and Miss Olga Grotte of Ishpeming were united in marriage on April 8th. The Doctor will make his future home in Chicago where he has accepted the position as assistant surgeon for the Illinois Central railway.

Dr. Nelson McLaughlin of Grand Ledge has been appointed as a member of the state board of registration in medicine to serve for the unexpired term of Dr. G. W. Nafe, deceased.

The Chicago Medical Society will hold its Third Annual meeting of Alienists and Neurologists of the United States, for the discussion of Mental Diseases in their various phases, on July 14 to 18.

Dr. G. W. Bird, wife, and son of Flint, sailed for Europe on April 16th. While abroad the Doctor expects to spend several months in the clinics in Vienna.

Dr. R. C. Allen of St. Joseph and Dr. H. S. Carr, of Niles, have been elected president and secretary of the Board of Pension examiners of that city.

Dr Charles H. Oakman of Detroit was elected president of the Board of Health to succeed Dr. J. B. Kennedy whose term as member of the board had expired.

Dr. E. M. Libby and son of Iron River have sailed for Europe and expect to be absent for several months which time will be spent in visiting the continental clinics.

Dr. Geo. B. Eusterman of Rochester, Minn., addressed the meeting of the Calhoun and Kent Societies on April 8th and 9th.

Dr. and Mrs. Ralph Fuerbringer of Saginaw have returned home after a six months absence spent in Europe.

Dr. and Mrs. Laniel Todd of Adrian celebrated the sixteenth anniversary of their marriage on March 24th.

Dr. A. S. Kimball of Battle Creek has resumed practice after several weeks illness caused by an infected thumb.

Dr. R. E. Balch of Kalamazoo has returned from an extensive vacation that was spent in the south.

Dr. J. H. Kellogg of Battle Creek has returned after a five weeks absence spent in Florida.

Dr. George H. Lynch of Big Rapids has been elected mayor of that city.

Dr. R. C. Main has been appointed as the full time health officer of Marquette.

The death rate in Menominee is 8.9 per cent., the lowest in the history of that city.

County Society News

BERRIEN COUNTY.

The regular monthly meeting of the Berrien County Medical Society was held April 19th, with sixteen present.

Dr. Inch of Kalamazoo gave an address. Judge Barr of the Probate Court also addressed us relative to the care and medico-legal phases of the insane, the feeble-minded, and wards of the probate court.

Dr. Mabel Elliott of Benton Harbor was elected secretary in place of Dr. Gregg, who has moved to Kalamazoo.

C. W. MERRITT, PRESIDENT.

CALHOUN COUNTY.

April 7, 1914.

1. Clinical Consideration of Gastric Disturbances. Dr. George Bysshe Eusterman, Rochester, Minn. Discussion—Dr. A. S. Kimball, Dr. Theodore Kolvoord.

2. Dermatological Clinic. Dr. Henry Rockwell Varney, Detroit.

Dr. Varney will discuss such cases as may be presented by the members, and it is hoped that a good supply may be on hand. Members presenting cases should be prepared to give as complete history as possible, and thus assist in the general interest, and help to make the meeting more valuable.

Calhoun County Bulletin herewith makes her bow, and presents you with Vol. 1. No. 1.

A feeling among the membership has been growing for some time that such a publication was needed in our Society, and how well it succeeds depends upon the support received from the membership.

Tell us how you like it and how it may be made better. We hope you will feel free to say what you would like to see in *The Bulletin*, for this is the property of the membership, and is prepared wholly to serve the membership.

Will you not be thinking how the organization of a staff of workers to carry out this publication can best be arranged? Considerable assistance is necessary, and when you are called on, please be ready to respond.

A. F. KINGSLEY, SECRETARY.

DETROIT OTO-LARYNGOLOGICAL SOCIETY

The Detroit Oto-Laryngological Society made its annual visit to the Clinic of Oto-Laryngology, University of Michigan, March 17th, 1914. The afternoon was purely a clinical one and the following thirty-five cases were demonstrated by A. R. Bishop Canfield and his staff:

Case 1. Acute Mastoiditis following nasal infection. Operated and convalescing.

Case 2. Acute Mastoiditis following tonsillitis. Operated and convalescing.

Case 3. Acute Exacerbation of Chronic Mastoiditis. Operated upon and convalescing.

Case 4. Acute Mastoiditis following coryza, which had been treated persistently elsewhere with autogenous vaccine. Owing to the fact that the patient was suffering from chronic interstitial nephritis, a complete mastoid was performed under local anesthesia.

The following four cases were shown in order to demonstrate four different directions in which extension takes place from the mastoid process into the neighboring structures:

Case 5. Acute Mastoiditis with post-aural abscess following tonsillitis. Perforation had taken place just back of the supra-meatal triangle.

Case 6. Acute Mastoiditis following grippe. Perforation had taken place through the anterior surface of the tip and had established a large neck abscess lying upon the vertebrae.

Case 7. Acute Mastoiditis with Sinus Thrombosis and large Abscess at Base of Skull. Perforation had taken place through the posterior surface of the tip.

Case 8. Acute Mastoiditis following head cold. Perforation had taken place along the surface of the sigmoid groove on to the deep neck muscles and into the floor of the mouth.

The following two cases of chronic suppurative otitis media with chronic mastoiditis were demonstrated as patients upon whom a radical mastoid was about to be performed:

Case 9. A Suppurative Otitis Media of 15 years' standing, upon whom two mastoid operations had been performed elsewhere without relief either of discharge or headache. Examination demonstrated complete destruction of the cochlear apparatus without involvement of the vestibular apparatus.

Case 10. Chronic Suppurative Otitis Media of three years' standing, the ear having been infected from an atrophic rhinitis. Inasmuch as treatment had been of no avail, this patient was prepared for a radical mastoid operation.

The following five cases were demonstrated as suffering from Chronic Suppurative Otitis Media, the important etiological factor of which was the presence of adenoids and tonsils:

Case 11. Marked destruction of both tympanic membranes and intra-tympanic structures with foul-smelling pus and cholesteatoma in both ears. Adenoid and tonsil operation to be performed.

Case 12. Same as Case 11.

Case 13. Ditto.

Case 14. Ditto.

Case 15. Ditto.

Case 16. A case of crushing fracture of the nose with complete dislocation of the septal cartilage into the left nostril. Fracture of both nasal bones and frontal processes of the superior maxilla, the whole being forced down into the left nostril so as to completely occlude it.

Case 17. A case of Chronic Empyema of the Right Frontal Sinus and Ethmoid, upon which a submucous resection had been done on account of a high deviation to the affected side, following which a radical operation was performed upon the right frontal and ethmoid.

Case 18. A case of Empyema of the Frontal Sinus, upon which a conservative external operation had been performed.

Case 19. A case of Arterio-Venous Aneurism, probably between the ophthalmic artery or some of its branches and the cavernous sinus. Patient had been shot by a 32 calibre revolver through the hard palate, ball passing through the skull and reaching the posterior surface of the apex of the petrous pyramid.

Case 20. A case of Recurring Laryngeal Polyp with Tetany. Patient aged 2½ years.

Case 21. A case of Extensive Atrophic Rhinitis, which showed the beneficial effect of nasal massage.

Case 22. A case of Post-Nasal Fibro-Sarcoma, operated upon a year previously by splitting the palate and removing the floor of the right nostril in order to secure access to the tumor which filled the post-nasal space and was attached along the vault of the naso-pharynx, right lateral naso-pharyngeal wall and right lateral nasal wall. Patient had returned for re-operation on account of recurrence.

Case 23. A case of squamous Cell Carcinoma of the Larynx, operated endo-laryngeal with an apparent cure.

Case 24. A case of Syphilitic Disease of both Labyrinths, showing typical reduction of bone conduction with preservation of good hearing for conversation.

Case 25. A case of Total Deafness, occurring a month after a slight trauma in patient with tabes.

Case 26. A case of Hereditary Syphilis, which had been operated upon elsewhere as a case of hypertrophied tonsils, and showing the disastrous effect of operating upon acute syphilitic lesions.

Case 27. Case of Extensive and Malignant Syphilis.

Case 28. Case of Hemorrhage of the Lenticulostriate Artery in a girl 18 years old, causing complete hemiplegia and complicating an acute otitis media. (Wassermann positive).

OPERATIONS.

Case 29. Adenoids and Tonsils. General anesthetic.

Case 30. Adenoids and Tonsils. General anesthetic.

Case 31. Ditto.

Case 32. Ditto.

Case 33. Cocain Tonsillectomy.

Case 34. Complete Mastoid operation for acute streptococic mastoiditis.

Case 35. Evacuation of a large abscess of the deep neck muscles as a result of perforation through the posterior surface of the mastoid tip.

EMIL AMBERG, SECRETARY.

HOUGHTON COUNTY.

The Houghton County Medical Society met at Calumet April 6th, 1914. The evening was spent in discussing the business affairs of the profession in the county. The fee schedule for working men's compensation law cases aroused a spirited discussion, and the secretary was finally instructed to write the other societies in the upper peninsula regarding their attitude towards the schedule. The secretary was also asked to inform the press of the copper country to refrain from printing doctors' names in connection with their cases without the obtained consent of the physician in question.

Two new members were elected. The meeting was then adjourned to the lunch room.

I. D. STERN, SECRETARY.

KALAMAZOO ACADEMY.

April 14, 1914.

Reports of Cases. Dr. J. C. Maxwell, Paw Paw.

1. Salvarsan and Neo-Salvarsan in the Treatment of Syphilis. Dr. Berten M. Davey, Lansing.

Discussion of Drs. P. T. Butler, A. E. West, R. P. Stark and F. Shillito.

2. Candy Medication. Dr. Bernard Fantus, Chicago.

Discussion by Drs. J. B. Jackson, A. S. Youngs, A. L. Robinson and G. D. Carnes.

A purely therapeutic program has not been before the Academy for some months. The trend of medicine has been to make a proper diagnosis. The old adage, "Having made the diagnosis, the treatment is usually plainly evident," has often led to therapeutic nihilism. This should create a lively discussion, because of the attitude of various reputable proprietary manufacturers who have frequently violated the trust that physicians had in them by using the tactics of the purely patent medicine and quack establishments. The shot-gun prescription still is in evidence. Therapeutic accuracy has not kept pace with the scientific accuracy of diagnosis.

This is the first meeting of the second quarter. We believe the Committee Chairmen should have accomplished something during the last three months. Therefore the President wishes that each

Chairman should prepare a report at the next meeting.

C. B. FULKERSON, SECRETARY.

MARQUETTE-ALGER COUNTY.

The regular monthly meeting of the Marquette-Alger County Medical Society was held in Marquette on Tuesday evening, March 17th. The essayist of the evening was Dr. C. N. Bottum of Marquette, and his subject was, "Tuberculin in the Diagnosis of Tuberculosis." This timely subject was treated in an exhaustive manner by Dr. Bottum who is the physician in charge of the Marquette County Tuberculosis Sanitarium where he has about twenty tubercular patients all of the time. The use of tuberculin in both diagnosis and treatment of tuberculosis is now under criticism as is shown by the proceedings on the subject in the meeting of the British Nat. Assn. for the Prevention of Tuberculosis, and reported in the *Journal of the A.M.A.*, of March 14th.

T. A. FELCH, SECRETARY.

MONROE COUNTY.

The regular meeting of the Monroe County Medical Society was held at the Monroe Club on Thursday, April 16th, at 2:15 p. m., and the following program was carried out:

Paper, Subject, "Some Common Skin Lesions," Dr. J. L. Murrat, Toledo.

Paper, Subject, "Some New Methods of Treatment." Dr. L. A. Levison, Toledo.

CHAS. T. SOUTHWORTH, SECRETARY.

OAKLAND COUNTY.

Regular Meeting, April 2, 1914.

Supervisor's Room, Court House, 7:30 p. m.

1. Some experience in Educating Tuberculous Patients. C. T. Starker.

Discussion.

2. Panama and the Canal (Illustrated). M. W. Gray.

3. Medicine and Sanitation in the Canal Zone. H. L. Tenkle.

J. J. MURPHY, SECRETARY.

SAGINAW COUNTY.

The annual meeting of the Saginaw County Medical Society was held at the City Hall, March 19, 1914, with a large attendance.

Dr. Arthur Grigg of Saginaw exhibited several patients presenting various stages in treatment by radium, and also exhibited some radium.

Dr. Geo. E. Fay, of Detroit, presented a splendid paper on "Fractures."

Officers were elected as follows:

Pres.—Dr. Robert McGregor, Saginaw.

Vice-Pres.—Dr. W. A. DeFoe, Saginaw.

Sec'y-Treas.—Dr. A. R. McKinney, Saginaw.

Trustees—Dr. H. J. Meyer, Saginaw; Dr. J. D. Bruce, Saginaw; Dr. Arthur Grigg, Saginaw.

Delegates to State Meeting—Dr. Robt. McGregor, Dr. A. R. McKinney.

Mem. Medico-Legal Com.—Dr. W. J. O'Reilly, Saginaw.

A. R. MCKINNEY, SECRETARY.

SOUTHWESTERN MICHIGAN TRIOLOGICAL SOCIETY

The sixth regular meeting of the Southwestern Michigan Triological Association was held in Ann Arbor, Monday, April 6th, Dr. E. J. Bernstein, the president, in the chair.

The meeting consisted of clinics, Dr. Walter R. Parker doing a cataract operation, a trephining for detached retina, an advancement of the internal rectus, and an enucleation. After the operative work he presented about twenty-five patients, giving the case histories and giving the members an opportunity to examine the patients. Among those presented were a case of pseudo-papillitis, the disc being typical, but the balance of the eye ground being apparently normal. Also a case of mic-ophthalmus with congenital coloboma of the iris ciliary body choroid and retina in both eyes. Also a case of paralysis of the right inferior oblique muscle, a case of central tumor with accompanying papillitis of five dioptries.

Dr. Canfield did two submucous resections of the nasal septum, and two mastoid operations. Dr. Canfield also presented about twenty cases showing mastoids in various stages of recovery, besides several other cases for diagnostic study and two cases convalescing from frontal sinus operations.

There were present at the meeting from out of town, Drs. Paterson and Roller of Grand Rapids; Bird of Flint; Buck of St. Johns; Obert of Jackson; Bernstein, Grant and Wilber of Kalamazoo; and Colver, Carling and Haughey of Battle Creek.

The next meeting will be held in Battle Creek, May 4th.

WILFRED HAUGHEY, SECRETARY.

TRI-COUNTY.

The regular meeting of the Tri-County Medical Society was held in the Club Rooms at the Court House at Cadillac, April 2, 1914. Dr. B. R. Corbus of Grand Rapids had been extended a special invitation and was the guest of the evening.

By a unanimous vote the Society decided to entertain the members of the Traverse Co. Med. Soc. together with their ladies, in a most suitable time and manner, in the near future. A conclave of this kind should clinch harder than ever the good feeling and professional regard between the members of the two bodies.

The Society has decided to install a projection lantern suitable for both opaque and transparent slides, and feel that with its use and assistance the subjects presented in the future ought to be more beneficial and instructive than ever.

The paper of the evening was presented by Dr. B. H. McMullen of Cadillac, on the subject, "Diseases of the Stomach," special reference being made to ulcer. The wide experience of the essayist was shown throughout the whole.

Dr. Corbus, whose special work lies in direct line with the subject presented, opened the discussion and elucidated in a very elaborate manner the various phases already dwelt upon by Dr. McMullen. Needless to say, his remarks were of utmost value as they brought before the members of the society the more recently advanced theories. The experience meeting which followed, in which more light upon questionable points in diagnosis was called for, by the various members was ample proof of the fact that the presence and talk of Dr. Corbus was very much appreciated.

By a unanimous vote the Society expressed its thanks and appreciation of Dr. Corbus for coming to

Cadillac and giving us this splendid discussion, as well as for good fellowship.

At a special meeting of the Society, held April 14, Dr. Reuben Peterson of Ann Arbor was the special guest. He presented a paper on "Eclampsia," and all who have followed Prof. Peterson's work in this regard can appreciate the value of the subject. It is needless to go into details as to the attitude taken and the line of reasoning followed as all students of medicine are well aware of this. At the close of the paper, there was almost no room for a doubt among those present as to the course to follow in Eclampsia. The discussion which followed, in which every one present partook, was of decided interest. Many ideas, opposing those given by Prof. Peterson were referred to, only to strengthen Prof. Peterson's views.

By a unanimous vote the Society expressed its gratitude to Dr. Peterson for his presence and paper. We appreciate when our friends from out of the county favor us with their presence, and present papers. Much is accomplished in this manner both in the way of furthering the ideas of individual members as well as forming a closer tie of fellowship between the Societies and outside world.

RUDOLPH J. E. ODEN, SECRETARY.

TUSCOLA COUNTY

The regular meeting of the Tuscola County Medical Society was held in Caro, April 13th, 1904 at 2 P. M., twelve members and five visitors being present.

Dr. Wm. Morris reported a case cystic stone occurring in a two and a half year old boy.

The following papers were read and will be sent to *The Journal* at a later date.

"Some Common Ocular Conditions, their Diagnosis and Treatment," by A. R. McKinney of Saginaw.

"Osteomyelitis: The Value of an Early Diagnosis and Treatment," by Dr. W. A. Hoyt of Ann Arbor.

"Pituitrin in Obstetrics," by Dr. W. F. Seeley of Ann Arbor.

The following resolution on the death of Dr. Deming of Cass City was adopted.

"Resolved by the Tuscola County Medical Society, that in the death of Dr. Daniel P. Deming, our oldest member and a practitioner of the county for forty years, we have lost a dear friend. He was a very loyal member, always enthusiastic in the society's work and ever ready in its discussions and deliberations. No distance was too great, or weather too severe to prevent his prompt and regular attendance. His companionable nature and ready wit made association with him a great delight.

To his family and relatives we extend our heartfelt sympathy in their great bereavement. Be it further

Resolved, that a copy of these resolutions be placed among the records of this society, a copy be sent to his family and a copy be published in *The Journal of the M.S.M.S.*"

W. C. GARVIN, SECRETARY...

WAYNE COUNTY.

Program

Monday, March 23—Surgical Section.

Appendicitis—Complications and Treatment. C. D. Brooks.

Monday, March 30—General Meeting.
 Sterility—Its cause, and treatment with an original stem pessary. C. Hollister Judd.
 Intravenous Anaesthesia. C. L. Candler.
 Monday, April 6—Medical Section.
 Nitrogenous Retention in Chronic Nephritis. Walter A. Hewlett.
 Monday, April 13—Medical Section.
 Cardiac Arrhythmias—With special reference to the non-instrumental recognition.—Lantern slides. W. J. Wilson, Jr.
 The Hospitals of Europe—Lantern slides. William B. Shatton.
 Monday, April 20.
 Joint Meeting—Retail Druggists with Wayne County Medical Society. James W. Helme, State Dairy and Food Commissioner.
 Delegates to the State Convention to be held at Lansing:

REGULAR	ALTERNATE
E. B. Smith	J. N. Bell
J. E. King	John Dodds
L. J. Hirschman	Rollin Parmeter
J. W. Vaughn	G. P. Myers
H. R. Varney	F. B. Walker
A. W. Blain	P. M. Hickey
C. W. Stockwell	E. G. Martin
Fred Cole	C. E. Simpson
W. D. Ford	M. V. Meddaugh
Guy Conner	F. B. Tibbals
E. K. Cullen	C. H. Oakman
	J. Van Amberg Brown
	R. L. CLARK, SECRETARY.

Book Reviews

TEN SEX TALKS TO GIRLS. (14 years and older.)
 By Irving David Steinhardt, M.D. Instructor in Clinical Surgery Cornell University, New York, 193 pages, 6 illustrations, 12 mo. Cloth, \$1.00 net. J. B. Lippincott Co., Philadelphia.

This book is a compilation of the author's talks delivered before several New York organizations and later published in the New York Medical Journal. It discusses matters pertaining to sex and the sexual relations in a plain, understandable way, imparting very clearly and properly the information which every young girl should possess.

The discussion of, and the enlightening of those topics of vital importance to every maturing female, is no longer tabooed. The false-modesty of the past is properly condemned, and the necessary, essential information and instruction is being given.

Mothers and motherless girls realize the necessity of possessing this information. They often come to the physician seeking the truth. To all such who thus consult you we recommend that you instruct them to secure this work. You will thus assist materially in relegating to the past the barrier that has caused so much of sorrow, heart aches and trouble. We wish every physician in Michigan might read and own a copy of this volume.

DEVELOPMENT AND ANATOMY OF THE NASAL ACCESSORY SINUSES IN MAN. Based on 290 lateral nasal walls, showing the various stages and types of development from the sixtieth day of fetal life to advanced maturity. By Warren B. Davis, M.D., Corinna Borden Keen Research Fellow, Jefferson Medical College, Philadelphia. Octavo of 172 pages with 57 original illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$3.50 net.

This book is based on the study of 290 nasal walls, presenting the anatomy and physiology of the nasal accessory sinuses from the 60th day of fetal life to advanced maturity. It is an original and personal work of the author and is a most meritorious contribution to the literature on this subject. He has accomplished his purpose of showing the various stages of the development of the sinuses and reduced his observations to a practical value.

Difficulty in securing bodies of children between the ages of two and sixteen necessitated a development of a technic by which the accessory sinus areas could be removed en masse and permit reconstruction of the face without marked deformity. This he accomplished and imparts the technic in this publication. The tables of averages, giving one the age, size of the ostia, origin, thickness of the septum, and anterior and posterior walls, vertical, lateral and posterior diameters and relation to the nasal floor all form valuable features of the work. It is an excellently gotten up book. It fills that niche which no other work does.

MEDICAL GYNECOLOGY. By S. Wyllis Bandler, M.D., Adjunct Professor of Diseases of Women, New York Post-Graduate Medical School and Hospital. Third Thoroughly Revised Edition. Octavo of 790 pages, with 150 original illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$5.00 net; Half Morocco, \$6.50 net.

A work for the general practitioner imparting the best and latest accepted forms of medical treatment for those trying conditions which do not call for operative interference. Diagnosis, symptomatology, and microscopic findings are taken up in each subject treated upon. Many valuable prescriptions are given. Constipation deservingly is given consideration in 40 pages of the text. Venereal diseases are covered in some 100 pages. Nervous diseases as the result of disease of the female generative organs is covered in a monograph of some 50 pages. The importance of internal secretions is elaborated upon and their relation to gynecological conditions is ably considered.

The reader is instructed how to recognize early the non-medical cases, and frankly points out the necessity of early operative interference. While in some cases over-conservatism predominates and valuable time is lost in recommending medicinal treatment in place of the good that conservative surgery will bring, still, on the whole, the book is to be commended. It is practically a necessity for the practitioner. It is a satisfactory result of conscientious effort of the author.

CHEMICAL PATHOLOGY. Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. Gideon Wells, Ph.D., M.D., Professor of Pathology in the University of Chicago and in Rush Medical College, Chicago. Second Edition, thoroughly revised. Octavo of 616 pages, Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$3.25 net. This work considers pathology from the standpoint of the chemical processes involved. It deals with the chemical changes which take place in pathologic conditions. It treats of the causes of disease, and so provides the first step in their treatment. It discusses the cell; the enzymes, their nature and action; autolysis; chemistry of bacteria and parasites and their products; immunity, agglutinins, precipitins, toxins, antitoxins, phyto-toxins, zoötoxins, hemolysis, serum cytotoxins; inflammation, blood diseases, edema, retrogressive processes (necrosis, cloudy swelling, gangrene, rigor mortis, various degenerations, etc.); calcification, pigmenta-

tion, tumors, metabolism, uremia, gout, diabetes, auto-intoxication, ductless glands. The introductory chapter presents the theories of the composition of proteins, ionization, diffusion, osmotic pressure, etc.

The volume fills a need in our literature. As a second edition it is an improvement over the first volume and is brought down to the accepted present day opinions attained by changed views and added knowledge. It is fully abreast of the times.

A MANUAL OF CLINICAL DIAGNOSIS BY MEANS OF LABORATORY METHODS. For Students, Hospital Physicians, and Practitioners. By Charles E. Simon, M.D., Professor of Clinical Pathology and Experimental Medicine in the College of Physicians and Surgeons, Baltimore. Eighth edition, enlarged and thoroughly revised. Octavo, 809 pages, with 185 engravings and 25 plates. Cloth, \$5.00 net. Lea & Febiger, Philadelphia and New York, 1914.

That this is generally recognized as the leading work on Clinical Diagnosis is shown by the demand which has carried it to its eighth edition. Such success indicates that it has won the hearty approbation of the profession; and this can result only from intrinsic merit of a high order. In this new edition will be found the advances which the last two years have brought forth. They are of great interest and importance. The account of the diagnostic methods based upon the appearance of the protective ferments of Abderhalden in the blood will be found up to date and, it is believed, a trustworthy guide for those who would venture into the attractive field of "organ diagnosis." Much of the technic in connection with the Wassermann reaction has been rewritten. The applicability of the complement fixation test to latent gonococcus infections having been satisfactorily established, the corresponding technic has been embodied in the present edition and should prove useful in many cases. The more modern methods of investigating the existence and extent of renal disease have been carefully considered, and should receive the attention of both the general practitioner and the laboratory worker. They are thoroughly practical, and should be employed as a matter of routine in the study of the corresponding diseases.

A very excellent and practical feature will be found in the second part of the volume, entitled "The Essential Factors in the Laboratory Diagnosis of Various Diseases." This section of 250 pages is devoted to the application of laboratory findings to diagnosis; and under the various diseases, which are alphabetically arranged, are given the essential points of diagnostic significance. This feature is unique in books on the subject.

In the new edition the text has been increased by about thirty pages, and a number of new illustrations have been added. The colored plates are exceptionally fine.

Commended most unhesitatingly. An excellent work for every practitioner and laboratory worker.

A TREATISE ON DISEASES OF THE SKIN. For the use of advanced Students and Practitioners. By Henry W. Stelwagon, M.D., Ph.D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Seventh edition, thoroughly revised. Octavo of 1250 pages, with 334 text-illustrations, and 33 full-page colored and half-tone plates. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$6.00 net; Half Morocco, \$7.50 net.

The seventh, reset edition of this work which has occupied the distinct position as being the exponent of American dermatology; a reference work and

text book is offered to the profession. Carefully compiled, clear in description, conservative and revealing the accurate observation and judgment of the author merits its cordial reception. Featured by reason of emphasis made of diagnosis and treatment, and numerous valuable illustration, the book becomes an actual necessity for every library. Every phase of the subject is carefully considered, while syphilis, pellagra, tropical affections, hook-worm and impetigo receive increased attention. An important section of 50 pages is devoted to falling hair and baldness and their treatment.

The study of this work will enable you to apply the latest and best in dermatological disease. Authors and publishers are deserving of the professions' congratulations.

THE PRACTICE OF PEDIATRICS. By Charles Gilmore Kerley, M.D., Professor of Diseases of Children, New York Polyclinic Medical School and Hospital. Octavo of 878 pages, 139 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$6.00 net; Half Morocco, \$7.50 net.

This new book is a complete work on the practice of pediatrics—bacteriology, pathology, diagnosis, symptomatology, treatment, with by far the greatest attention given to diagnosis and treatment. One point regarding treatment is this: When age has any bearing upon the course of treatment, the treatment for different ages is clearly indicated. This is very important.

The first chapters of the work are devoted to such general subjects as clothing for the infant, bathing, management, sick-room, etc. Then follow chapters on the newborn and its diseases, the feeding and growth of the baby, the care of the mother's breasts, artificial feeding, milk modification and sterilization, diet for older children. Then are discussed systematically and in detail every disease of childhood, telling just what measures should be instituted, what drugs given, and in many cases valuable prescriptions are included.

The chapter on Vaccine Therapy is right down to the minute, including every new method of proved value—with the exact technic.

There is a large chapter devoted to therapeutic measures other than drugs, and an excellent chapter on Gymnastic Therapeutics, giving explicit directions for the correction of certain abnormalities in which gymnastics have proved efficacious.

CONDENSED TABLE OF CONTENTS.

- General Considerations.
- Examination and Diagnosis.
- Diseases of the Newborn.
- Mouth and Esophagus.
- Stomach, Intestines, Peritoneum.
- Rectum and Anus.
- Spleen and Liver.
- Respiratory Tract.
- Heart.
- Blood.
- Glandular System.
- Urogenital System.
- Nervous System (nervous and mental diseases of children.)
- Skin.
- Ear.
- Transmissible Diseases.
- New Diagnostic Methods.
- Vaccine Therapy.
- General Diseases.
- Suggestions on Management.
- Therapeutic Measures Other than Drugs.
- Gymnastic Therapeutics.
- Drugs and Drug Dosage.

This is the author's compliance with numerous requests that he produce a comprehensive work on diseases of children, and he has responded ably. It is a safe and valuable guide and certain of receiving the stamp of approval from all pediatricists. The publishers mechanical work is of high standard and enhances the value of the volume.

ELECTRICITY IN DISEASES OF THE EYE, EAR, NOSE AND THROAT. By W. Franklin Coleman, M.D., M.R.C.S. Eng.; ex-Pres. and Prof. of Ophthalmology in the Illinois School of Electro-Therapeutics; etc. Octavo; 595 pages; illustrated. Chicago, Courier Herald Press, 1912.

The author presents a very readable and comprehensive compilation of his personal experiences together with the reported findings and attitudes of many other workers in the electro-therapeutic field of special practice. There is an excellent section on the physics of electricity and electrical apparatus. The therapeutics and diagnostic uses of electricity with various types of currents, lights, ozone, etc. are taken up exhaustively under sections on the Eye, Ear, Nose and Throat. These sections are of great interest to the specialist regardless to his attitude toward the conclusions drawn.

The book will find a very proper place in any medical library.

We cannot agree with the author that Electro-Therapeutics will ever "to a considerable extent supplant surgery and treatment by drugs."

THE JUNIOR NURSE.. By Charlotte A. Brown, R. N., Instructor in the Boston City Hospital; Graduate of the Boston City Hospital and Boston Lying-in Hospital Schools for Nurses; late Superintendent of the Hartford Hospital Training School, Hartford, Conn. 12 mo, 208 pages, illustrated. Cloth, \$1.50, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

Brown's Junior Nurse is a volume which should be read and kept for reference by every one who enters upon the course of training for the nursing profession. It is full of valuable information which is particularly useful to the beginner, and which is sure to be of service not only through the entire course in the training school, but afterwards in actual nursing of any kind. The book is characterized by clearness and simplicity. In the presentation of each topic the clinical features are emphasized throughout. The volume opens with chapters on the Qualifications of the Nurse, and her Personal Hygiene, on Bed Making and the Admission of Patients. Then follow discussions of all of those subjects, a knowledge of which is necessary for the discharge of the nurse's everyday duties. The sections on Bandaging, on Emergencies and on Infectious and Contagious Diseases are worthy of special attention. A convenient glossary is placed at the end of the volume. The illustrations are extremely helpful, especially those in the section on bandaging.

If you are on the training school committee of your hospital you will do well to add this book to your list of recommended text books for nurses.

A MANUAL OF INFANTILE PARALYSIS WITH MODERN METHODS OF TREATMENT. Including reports based on the treatment of 3000 cases. By Henry W. Frauenthal, A.C., M.D., Surgeon and Physician in Chief New York Hospital for Deformities and Joint Disease; and J. V. V. Maunung, M.D., Epidemiologist, Wisconsin, 1908. Illustrated with more than 100 original engravings. F. A. Davis Co., Philadelphia. Price \$3.00.

This compilation of the authors' experience with acute poliomyelitis is free from an abundance of technical terms and presents to every physician a most excellent manual and one that may be placed in the hands of the more intelligent parents.

It is an able discussion of this disease and covers its every phase. It is a most welcome addition to the literature upon this subject. It deserves nothing but commendation.

Miscellany

THE ABSORPTION OF IRON FROM MINERAL WATERS. It is now generally admitted that both forms, organic and inorganic, of iron compounds can be absorbed and satisfactorily carry out the purposes for which they are ordinarily administered. Recent investigation has shown that iron salts are absorbed from natural waters (chalybeate waters) in which they occur and there is no reason for supposing that these cannot facilitate hemopoiesis and hemoglobin formation, if there is a deficiency in the iron-containing component of the blood, precisely as medicinally administered iron may. They seem to possess no advantage, however, over the latter (*Jour. A.M.A.*, March 14, 1914, p. 856).

THE DANGER OF CROTALIN. A death from infection from the use of crotalin is reported by J. F. Anderson of the U. S. Public Health Service. Out of 95 ampules of crotalin solution, from four different manufacturers, 35 were found to be contaminated; further, 12 tablets were examined and all found to be contaminated. It was demonstrated that there was a variation in the activity of different lots of crude venom and also in the solutions prepared by the same or different manufacturers. The report emphasizes the dangers of the use of rattlesnake venom or crotalin for the treatment of epilepsy (*Jour. A.M.A.*, March 21, 1914, p. 934).

MERCURIC CHLORID AND THE PUBLIC. In commenting on the use of mercuric chlorid tablets by the public and on the attempts to check this by special legislation, M. I. Wilbert points out that the exploitation of this drug under non-descriptive titles such as "antiseptic tablets" is partially responsible for their indiscriminate use. The fact that they are given a distinctive shape or color does not serve to protect the purchaser if he is uninstructed as to contents; instead it tends to elaborate on the misuse of the tablets. Physicians are to some extent responsible for the public use of tablets of corrosive mercuric chlorid, for in the past, these tablets have been prescribed or given to patients for antiseptic purposes without sufficient precaution as to their poisonous character (*Jour. A.M.A.*, March 28, 1914, p. 1042).

RADIUM AND ETHICS. Reforming to enthusiastic statements by physicians relative to the curative value of radium emanations, the *Edinburgh Medical Journal* asks if there is much difference between the advertisements of any catch-penny patent cure-all and such announcements. It is pointed out that the public is only too ready to believe any tale as to the value of radium as a cure for gout, rheumatism and cancer and hence the medical profession should absolutely refrain from publicly encouraging such notions (*Jour. A.M.A.*, March 28, 1914, p. 1044).

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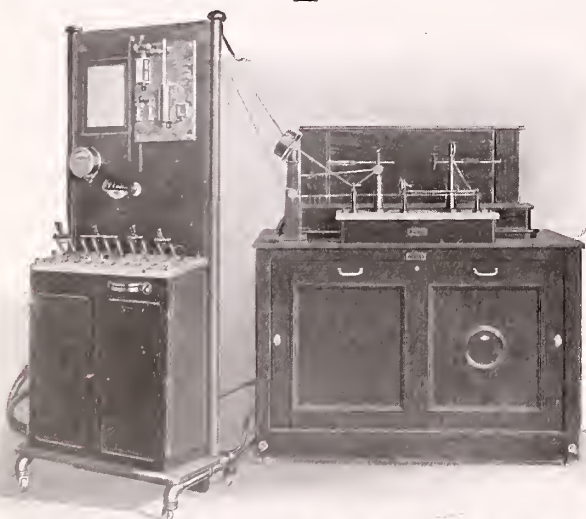
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MODERN TREATMENT OF FRACTURES*

M. L. HARRIS, M.D.

CHICAGO, ILL.

During the past few years there has been considerable improvement made in the treatment of fractures. That there was room for improvement no one who sees many of these cases will deny. For ages the profession has been satisfied, even though the patients were not, with what is commonly called a functional result; which means if a patient could walk on the leg or use the arm the result was considered good. Today, however, the situation is changed. Modern surgery demands a good anatomic result, when possible, and is no longer satisfied with an ordinary functional result. The term, "functional result," was born of a desire to make a bad matter appear better than it really is. For instance if a man had a fractured thigh, which united with an inch and a half of shortening and some angular displacement, the patient was made to feel as good as possible, by telling him that he had a functional result, which meant that he could walk on it, even though he did have a crooked leg, and walked with a limp, and had pain in his hip or knee. Naturally, a shortened and crooked leg on which the patient can walk, is better than a fractured leg, which cannot be used at all. If it were the natural tendency for every fracture of the leg to remain broken and, therefore, useless, and if by some form of treatment the bone could be made to unite and thus become a useful leg, what is commonly called a functional result might be looked upon as a great achievement; but such is not the case. The tendency is for all broken bones to unite if given half a chance, and unless the surgeon by his method of treatment can bring about union with the ends of the bones in their normal anatomic relation, but little has actually been accomplished.

It has always been the belief of the

average layman that if a broken bone was properly set, it would be just as good as it ever was, and that whenever a bad result followed a fracture it must necessarily be due to the fact that it was not properly set. Unfortunately, the profession itself is largely responsible for this erroneous belief by lending too much countenance to it, particularly when the bad result occurred in the practice of some one else. There is nothing that has contributed so much to taking the conceit out of the inspired seventh son, "The Great Doctor Bone-Setter," as the X-Ray. If there is any one who thinks that he is an expert fracture setter let him take most any ordinary fracture of the thigh or a spiral fracture of both bones of the leg, and after he has got them in real good condition, to his satisfaction, let him have an X-Ray picture taken. If after seeing the picture he does not feel like sending for a doctor, I should be much mistaken.

After many years of quite an extensive practice in large emergency hospitals, with every convenience at hand, I wish to say most emphatically, *that a perfect anatomic adjustment of the fractured ends, by any method or means of external manipulation, is an absolute impossibility in the great majority of cases.* In making this statement I do not wish to be understood as implying that a reasonably good adjustment cannot be made in many cases, which with proper after-care will lead to an excellent functional result; but, I do mean that in the majority of cases of fracture of the long bones, the result will be far from perfect, anatomically considered. The reason why it is impossible to adjust these fractures perfectly, in an anatomic sense, will be apparent to any one who will open up a number of them and study the local conditions found. Blood clots, muscular and facial attachments, sharp spiculae of bone catching in the soft tissue, inter-position of the soft tissue, inter-position of small, detached pieces of bone, which I may say is much more common than is usually supposed, and last, but by no means least, the irregularity of fractured ends, making it impossible to get them to come together, except by placing them in a certain position, which position can be

*Read before the Section on Surgery at the 48th Annual meeting of the M.S.M.S. in Flint, Sept. 4-5, 1913.

determined only by inspection. These are some of the obstacles, which interfere with perfect adjustment by external means. These obstacles, naturally, have always existed, and I have no doubt that many will claim that good results were obtained by the old methods of treatment, notwithstanding. It will be granted that some good results were obtained and many fair ones, but it must also be admitted, that there were many poor results and not a few bad ones.

It is not claimed that the bad results are all due to improper treatment, for in many cases the obstacles to be overcome are insurmountable, and the surgeon is not to be held responsible; but the firm belief of the people that if a fracture is properly set the result will be good, is so universal that it is the duty of the surgeon to see that the patient has a proper understanding of the matter. The first rule then I wish to lay down in the treatment of fractures, and a rule which I cannot emphasize too strongly, is *to keep the patient fully informed of the exact situation at all times*. It is a great mistake to allow the patient to go along in the belief that the fracture has been perfectly reduced and that everything is all right when it is not. If it is not all right, it is sure to be found out sometime, and then the surgeon will rightly be held to blame for the bad result. Tell the patient the exact condition of the fracture, so that he may know and govern himself accordingly. If the patient is a minor, communicate the facts to the parents or guardians. In order that a surgeon may be able to do this, it is necessary for him to know the exact conditions himself; so that we now come to the second rule, which I wish to lay down, and which, in point of time, will be readily recognized as preceding the first rule and that is, *be perfectly certain that you are thoroughly familiar with the exact conditions yourself*.

Before the introduction of the X-Ray it was not always possible for one to be familiar with the exact conditions present in a fracture. Of course, from one's knowledge of the kind of fractures that are likely to take place in certain bones and from one's examination, one can as a rule form a very good idea of the nature of the fracture in many cases, but the X-Ray has shown us that there are many things to be seen and learned by their use which could not be discerned in any other way. Not only does the X-Ray reveal the presence of fractures which could not be discovered in any other way but, when properly interpreted, it shows the exact relations of the parts and makes the same visible not only to the eye of the surgeon but to the eye of the patient as well. And this means that in the case of intelligent persons of suitable age, the X-Ray plates or pictures should always be shown and explained to the patient.

The question now at once arises, should the

X-Ray be used for diagnostic purposes in all cases of fractures or of suspected fractures. This can be answered unhesitatingly in the affirmative, in all cases involving the extremities and it may be used even to advantage in many cases of fracture of the spine, pelvis, ribs, etc.

At the present time the use of the X-Ray has come to be considered an essential element in the proper diagnosis and treatment of fractures whenever the same is accessible. It is rightly recognized that every doctor cannot have and use an X-Ray outfit, nor is it always possible to move a patient to an X-Ray outfit or the outfit to the patient, but whenever the X-Ray outfit is available, it is the duty of the surgeon to use it, or to place the responsibility of not using it on the patient by letting him know why it is not used, so that he can make other arrangements, if he so desires. This is a matter of considerable importance to the surgeon, as a recent case in New York shows. In this case the surgeon was assessed \$15,000 damages by a jury and the verdict was affirmed by the Appellate Court for failing to use the X-Ray in the case of a fracture of the femur, which turned out badly, and this notwithstanding the fact that the surgeon showed that he had tried to have an X-Ray picture taken, but the apparatus at the hospital, where the patient was being treated, was out of order. Although the patient was twenty-five miles from New York City, the Court, in affirming the verdict, said that this was not an unreasonable distance to send for an X-Ray outfit to be brought to the patient, so that a picture could be taken. While this case was certainly a gross miscarriage of justice, it shows to what extent the courts may go in holding that the use of the X-Ray is an essential part of the proper diagnosis and treatment of fractures. Had this surgeon explained the situation fully to the patient, the responsibility of securing the X-Ray outfit from some other place, would have been on the patient where it belonged, instead of on the surgeon. I would announce, therefore, as the third rule: *always have X-Ray pictures taken of all fractures, if possible*.

If the X-Ray is not readily accessible, communicate the facts to the patient at once, and thus place on him the responsibility of having you continue the treatment of the case without the use of the X-Ray or making some other arrangements. Most intelligent persons today soon ask to have an X-Ray picture if it is not already suggested by the surgeon. Show the pictures to the patient and explain them to him, so that he will have a correct understanding of them. In all fractures of the extremities pictures should be taken in at least two diameters at right angles to each other. After the fracture has been adjusted or set, as it is commonly called, pictures should again be taken

to see whether the adjustment has been satisfactory or not. These pictures should also be shown to the patient, so that he may know the exact condition. If the fragments are not in a satisfactory position another attempt should be made to secure a better or a more perfect adjustment. If the patient can see from the X-Ray picture that the ends of the bone are not in good apposition, there will be no objection to renewed efforts at adjustment. He will appreciate better the difficulties to be overcome. If necessary, the patient should be placed under an anesthetic in order to facilitate the setting.

The question whether a fracture has been satisfactorily reduced or not is one of judgment, and no absolute rule can be laid down for all cases. The ideal reduction is, of course, a perfect anatomic adjustment, and as already stated, this in the majority of the cases of fracture of the bones of the extremities is an impossibility by external means alone. It is admitted that with proper care and treatment fairly good functional results may be obtained in the majority of cases, but are we justified in being satisfied in securing only fairly good functional results, provided it is possible to secure perfect anatomic, as well as functional results. Whether we are satisfied or not with these results, it may be said right here that the people are not satisfied with them. They are looking at the X-Ray picture, and are seeing that the ends of the bone are not in good apposition, and they are beginning to learn that much of their pain and lameness and a great deal of their incapacity after their recovery from a fracture are due to the fact, that there is not a perfect anatomic result, and furthermore, they are also beginning to know that a perfect anatomic result may be obtained in many cases by proper operative procedures and they are demanding of us better results in the treatment of their fractures.

OPEN TREATMENT.

We are, therefore, brought to the main question relating to this subject, namely, should a fracture be treated by the open or operative method, by which we are able to secure a perfect anatomic result, or should it be treated by the conservative method, with as a rule, only a fair functional results? We hear a great deal of discussion today about when a fracture should be treated openly. If we had to decide between a perfect anatomic result on the one hand and imperfect functional result on the other, it were easier to decide, but such is not the case. There are many factors to be taken into consideration, so that the question is not a simple one to answer. So far as the mechanical aspect of the case is concerned, one would say to operate on every case, no contra-indications existing, in which it is found to be impossible to obtain and

maintain a perfect reduction of the fracture by external means alone. Were there no other factors involved in the question, this simple rule could be laid down as indicating the class of fractures which should be operated on.

Unfortunately the practical application of this rule is found to be attended with much danger. In converting a closed fracture into an open one there is great danger of the bone becoming infected. In opening up a fresh fracture the danger of infection is much greater than it is in opening up the peritoneum for the peritoneum is able to take care of a great many germs, which undoubtedly find their way into it in practically every operation involving that cavity, but open bone tissue possesses this power to but a very limited degree indeed; hence the danger of infection in operating on a fresh fracture is very great. As present day methods of operating involves, as a rule, the placing and maintaining in the wound of a non-absorbable foreign body in the shape of some form of a metal plate, this still further enhances the danger of infection. In fact, the danger of infection is so great that it is found to occur in a very large percentage of the cases in the hands of the ordinary surgeon who tries to do this kind of work. Acute infection of these cases is such an exceedingly serious matter, involving, as it does, a long tedious illness and at times, the loss of a limb or even life, so that the most difficult question to answer in the treatment of fractures is not what cases should be operated upon, but who should operate on them. Not every one who is capable of successfully doing an ordinary laparotomy should operate on these cases. This work requires the highest degree of technical skill in order to insure success. Nothing but the most perfect instrumental technic carried out in every detail by all participating in the operation is permissible, and any deviation from this by any one is almost certain to lead to failure. Instrumental technic is a great refinement of ordinary technic. After listening to some surgeons talk about instrumental technic and then seeing them operate, I have been much surprised many times at the great difference between their words and their works. Some men seem to be able to talk about it all right, but fail utterly when they attempt to carry it out. Unless one is automatically perfect, infection and suppuration are certain to follow in a good percentage of these cases, and this is why this very desirable method of treating fractures cannot at present find more general application. However, the mere fact, that a certain method of treatment is difficult of execution or that it requires a great deal of practice, in order that one may acquire the necessary degree of skill to be reasonably certain of success, is not sufficient to condemn the method. The method must

stand or fall on the results obtained. If the method brings to the patient greater benefits than can be had by any other method, then it must live. If it is not more beneficial than any other methods, or if it is so dangerous to life as to make it unsafe, then it must fail.

Before deciding the question it will be necessary to consider a little more in detail the results which may be obtained by the open or operative treatment of fractures. As already stated years of experience have shown that in the great majority of cases of fracture of the long bones of the extremities it is absolutely impossible to secure an anatomic reduction of the fractured ends by any means. On the other hand, by the open method, the fractured ends can be brought into perfect anatomic adjustment in all cases except where the bone has been so much crushed as to make it impossible to restore its outline, or in compound fractures where portions of the bone have been lost. Notwithstanding the fact that many will claim that the functional results obtained in the past by the older methods have been so good in the majority of cases as to leave little to be desired, *I wish to state that I believe that a perfect functional result is impossible without a perfect anatomic result*, and the reason that so many of the functional results obtained in the past were called good was due simply to the fact that we were unable to secure better ones, and the term good was used merely in a relative sense. Any one who will study in an unbiased manner the results obtained by the older methods of treatment in a large number of cases of fractures of the lower extremities, as has been done and is still being done by the American Surgical Association, will find that a certain amount of permanent disability exists in quite a large percentage of the cases by reason of an imperfect anatomic result. The evidence on this point is overwhelming. This is not an indictment of our methods but a simple statement of the facts that the best we could do under the circumstances fell short of the ideal.

Granting then that a perfect functional result is impossible without a perfect anatomic result, by placing the fractured ends in a perfect anatomic position by the open method, we have taken the first essential step towards securing a perfect functional result. Some fractures after being replaced in this manner show little tendency to become re-displaced, but such is not the rule, as the majority of fractures of the long bones of the extremities, are so liable to become displaced again by muscular contraction, as to make it practically imperative that some form of fixation appliance be adopted in order to secure the retention of the parts in apposition until union can take place.

For a long time, some method of wiring the ends of the bone together was employed, but

experience showed this to be very imperfect means of fixation; hence it has been practically universally discarded at the present time, except in some special instances. Today some form of a plate is fixed permanently to the bone by means of screws. The one most commonly used is that known as the Lane Steel Plate. Plates and screws made of other materials than steel, such as silver, bone, ivory, etc., have been proposed and used by different operators, but the great trouble with them all is their lack of strength. Even the steel plates bend or break at times, particularly in fractures about the middle of the thigh.

The steel plate when well applied fulfills the purpose very well from a mechanical standpoint, but objections have been raised to the placing of so much non-absorbable material in the bone, and these objections will have to be considered.

The first of these objections is that suppuration may take place about the plate, thus necessitating its removal. It is perfectly true that suppuration does take place in some cases and it is equally true that when it does occur, it is almost always due to faulty technic. When any one admits that he has been obliged to remove his plates on account of suppuration, he must admit that he has not mastered the instrumental technic; for with perfect technic suppuration will not occur. It is very rare indeed for suppuration to take place at a remote period after the operation as the result of a hemogenous injection, for after the plate is once well encapsulated it very seldom gives rise to any trouble.

Another objection is that the plate may cause pain in the bone. This, in my experience, is very rare. In one case of fracture of both bones of the leg, about the middle, in which there was considerable displacement, with non-union at the end of three months, a plate was applied in the usual way and the patient complained of great pain, particularly at night. He was a syphilitic and the pains materially diminished after he was placed on specific treatment. However, at the end of six or seven weeks, he requested that I remove the plate, which I did; but this is the only case in which I have had to remove the plate on account of pain.

A third objection to the plate is that the screws in the bone may interfere somewhat with osteogenesis and thus delay slightly the union. I am inclined to think there is some truth in this statement, for I have noticed in several cases that firm union seemed to be delayed somewhat beyond the average time. This, however, is not true in all cases, but it must be borne in mind and patients with plated fractures of the leg should not be permitted to bear their weight on the leg too soon. Were the union delayed slightly in all cases, the objection could

not be serious enough to detract materially from the great advantages of the method.

Instead of using some foreign substance as a plate, a piece of bone taken from the same bone or from another bone of the same individual may be utilized to fulfill the function of a plate. While this plan may be used in some cases, it cannot as yet supplant the regular plates in the majority of fractures. Should further experience show that there are objectionable features attached to any particular plate or substance, it is very certain that means will be found to overcome the objection for the general principle of securing perfect anatomic adjustment with fixation by the open method has become definitely and permanently established.

CONCLUSIONS.

In conclusion, I wish to present the following principles which should govern the modern treatment of fractures:

1. Be sure that you are thoroughly familiar with the exact conditions present.
2. Do not fail to make use of the X-Ray when necessary to enable you to become familiar with the exact conditions present.
3. Always explain fully to the patient (parents or guardians) the facts, showing him (or them) the X-Ray pictures, so that he (or they) may have a thorough understanding of the case and thus may know what to expect in the way of results.
4. If an X-Ray is desirable in order to make clear the situation, and if it is impossible or inexpedient to secure one, so state the facts to the patient, so that the responsibility of proceeding with the treatment of the case without the aid of the X-Ray will rest on the patient.
5. Have X-Ray pictures taken after attempts at reduction in order to see if the reduction has or has not been successful.
6. It is practically impossible to obtain a perfect anatomic reduction in the great majority of fractures of the long bones of the extremities by any external means or manipulations.
7. A perfect functional result is to be expected only in the presence of a perfect anatomical result.
8. When a reasonably perfect anatomical reduction in fractures of the long bones of the extremities cannot be brought about and maintained by external means, the case should be treated by the open or operative method, providing no contra-indications to operation exist.
9. The operative treatment of fractures requires the highest degree of technical skill in order to give reasonable assurance of success.
10. This method of treatment should not

be undertaken by one who is not equipped with the proper appliances and who is not thoroughly trained in the special technic of bone surgery.

CROTALIN TREATMENT OF EPILEPSY —A TABULATED REPORT OF TWENTY-TWO CASES TREATED WITH CROTALIN INJECTIONS.*

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The crotalin treatment of epilepsy is one that requires a long continued treatment to ascertain any results that may be actually attributed to the action of the snake venom.

Many reports have been published concerning its wonderful cures in certain selected cases, but in *no* instance of my twenty-two cases treated have any beneficial results been obtained as far as reducing the number of seizures entirely. Quite a few of the cases have had spells of remission from attacks during bromide or other treatment the same as when under the crotalin, so the number of seizures that they have had under the latter treatment is no guide as to the effects of the drug.

Some authorities have gone so far as to say that the seizures have ceased completely after two or three injections, which I have failed to obtain in any of my cases.

My cases are selected from 350 epileptics in the Michigan Home and Training School and all forms are included in the list as far as possible. All other forms of medication were withdrawn except in two cases as will be mentioned in their respective histories.

Included in the twenty-two cases are thirteen who had both the major and minor attacks; eight who had the major attacks only, and one who had only the minor attacks and they were of the psychic form.

Twelve of these were of idiopathic origin and the remainder were attributed to insolation, skull injuries, diseases, "etc."

The ages of the patients average from 14 to 33 and include twenty males and two females.

Fourteen were given injections of Dr. May's solution and eight were given Dr. Spangler's solution and each patient's record was kept separately in order to give justice to each preparation.

All the patients' diet was watched closely, tobacco interdicted and the bowels kept open with mild laxatives if needed.

The medicinal treatment which they had been taking previous to the injections was gradually withdrawn before any injections were given as many cases sometimes develop quite a

*Read at April meeting of Lapeer County Medical Society.

run of the seizures from the sudden withdrawal of some medication which the patient has been in the habit of taking.

The reaction obtained from the injections varied a great deal and in some cases a very persistent cellulitis would be present for twenty-four to thirty-six hours after the first injection and then not occur again no matter how large the dose might be.

In all there were 687 injections given and in no case was there any sign of abscess formation due either to lack of antisepsis on my part, or the possibility of the solution being contaminated by the chemist. The latter statement will not agree with that of Dr. Anderson of the U. S. Public Health Service who in an article, published in the *Journal of the American Medical Association* of March 21, 1914, states that 38.8 per cent. of 95 ampules tested by him were found to be contaminated with other organisms, or pus producing germs.

If such had been the ratio of non-sterile ampules in my cases I would have had about 181 infected arms, and needless to say, several other complications which might have cost several patients their lives.

In each case the skin was painted with tincture of iodine at the site of injection both before and after the injection and the wound immediately sealed with collodion. All antiseptic precautions were also taken with the needle after each injection.

The initial dose in each case was 1/200 grain and the doses were afterward gradually increased in proportion to the severity of the attacks until the maximum dose of 1/50 grain was given.

Some of the cases received the maximum dose within a few months after the injections were started while others did not receive it until after the sixth month of treatment.

With regard to the amount of local reaction in relation to the number and frequency of attacks I do not think it is advisable to say that a good local reaction means any improvement in the number of attacks for some of my cases would always have one or two attacks after a severe reaction and one case in particular always had an attack immediately after an injection, which is in opposition to the theory claimed by many that any local irritant has a tendency to abate attacks.

The sites of injections were the lower arm just above the elbow alternating from left to right, which, however, did not seem to cause any excessive reaction or cause any marked improvement.

Injections were given at intervals of seven days except in one case that seemed to be benefited more by giving it every five days after the sixth month.

The only improvement I have noticed is in

the mental condition of a few of the patients. One case in particular that I refer to is 1483 who always had serial attacks of the major form about once each month and after each series he would be in comatose condition for a week, but now his attacks are few and occur more regularly, together with a slight decrease in the severity. He has only had three single major attacks in the past three months and seems to be much brighter in many ways.

There is no doubt that the withdrawal of the bromides helps the mental condition to a great extent and it is to that which the most of us fail to give credit. Since the injections have been discontinued I have not given the patients any form of medication for the attacks unless their condition demanded it and at the present writing only eight of the twenty-two are receiving any form of epileptic medicine, and the remaining fourteen are not having any more seizures now than they had during the crotalin treatment which shows that they are either reacting to the accumulative action of the venom or that it is a normal condition.

One case, (298), died from a status of 100 major attacks, one month after the injections were discontinued, but no direct cause of the sudden increase in the number of attacks could be ascertained.

SUMMARY.

Summarizing the results of the twenty-two cases I will say that:

Two have a decrease in the number of seizures.

Six have an increase in the number of seizures.

Three have an increase in the severity of the seizures.

Two have a decrease in the severity of the seizures.

One improved mentally.

Six, no improvement either mentally or physically.

Seven are worse.

One became insane.

In conclusion I wish to state that this report is not one that looks very encouraging for the treatment of epilepsy with crotalin, especially when it is compared with some other reports which show such enormous improvements, even if only a few injections were given.

I think any physician who has any respect for his patient will think twice before he uses it, as these poor unfortunates seem to be preyed upon by all forms of treatment with no more effect than having a few attacks controlled, and if they have to have the added pain and discomfort from these injections with no sign of cure, it seems to me to be a case of adding insult to injury.

CASE HISTORIES.

The following is the individual case histories of the patients that were given the treatment:

CASE 1889. R. L. Male. Single. Age 21. Inmate of Home.

Family History.—Mother living at the age of 50 but nothing known of father's whereabouts. Both parents of foreign birth but no positive knowledge can be obtained as to any epileptic ancestry.

Patient the last of a family of three all of whom are in good health.

Personal History.—Birth was instrumental; teething began at seven months; mumps at seven years; whooping cough at six and measles about the same time but recovered promptly from each without any complications.

Epileptic History.—Started to have attacks at seven years of age and the cause was supposed to have been high fever which he had at that time from a heavy cold. However, there is a traumatic history at about the same time when a wagon tongue fell on his head.

These attacks continued at the rate of one a year until he was fourteen when they changed to one to four a month which he had in the major form. Patient always falls if standing and has received many injuries from such falls. Mental condition seems to be nearly par except for a short time after each seizure.

Effect of Crotalin Treatment.—Under the treatment for 42 weeks he averaged three severe attacks for the first twelve weeks, then they averaged the same as they were previous to the injections. The attacks were somewhat lighter but the mental condition did not improve to any extent during that time.

Dr. May's solution was given every seven days until the sixth month when I found that the patient was benefited more by giving it every five days. This however failed to cause any more improvement, after being given for a period of two months.

CASE 1483. T. H. Age 17. Single. Inmate of Home.

Family History.—Mother living but father died from cerebral hemorrhage. Father was a physician of moderate circumstances and good habits. Patient was the youngest of three children, and had some defect at birth, which caused him to have imperfect speech and walk.

Personal History.—General history of seizures since eleven years of age. Had measles, scarlet fever and whooping-cough during childhood. Began to walk at two and one-half years and to talk at two.

Epileptic History.—Attacks started to appear at the age of eleven years and continued at the rate of three or four a month until two years later when they started to change into serial attacks about once a month, each series consisting of eight to fifteen major attacks. These continued as such until about the third month of the crotalin treatment when they entirely left him in that form. However, the attacks occur mostly in the minor form and in single attacks. During the treatment he has improved in his mental condition more than any of the other cases that were given this treatment which might be partially attributed to the fact that he has had only three severe attacks in the past three months.

I have also got records to show that he has had spells of remission from attacks for six months at a time with no other treatment than bromides.

CASE 1810. G. S. Single. Age 30. Inmate of Home.

Family History.—Father living and in good health. Mother died as a result of operation for the decapitation of a child during labor.

Family of seven children all in good health and negative epileptic history.

Personal History.—Normal birth; teething began at three months; walking at one year. Had none of the disease of childhood, but has been treated in London, England and other cities for his epileptic attacks.

Habits are not excessive but he has been in the habit of smoking and drinking a little before his admission to the Institution.

Epileptic History.—Seizures began at the age of twelve years and the cause is not definitely known: Exposure to cold is given by the parent but that seems to be unreliable. The second attacks did not occur until about two years later and after that time they occurred about two per week.

These attacks were very severe when he first received the crotalin and each attack was ushered in by a spring forward from where he would be sitting or standing just as though he were making a dive into a pond.

His hands would be thrown up and he would fall with a crash on his elbows and face so hard that it was a miracle that his bones were not broken. These attacks would be followed by a sleep of twenty to twenty-five minutes.

Effect of Crotalin Treatment.—During the treatment with Dr. May's solution for twenty-nine weeks the seizures diminished in number and severity for a few weeks then they started again about the same as before, until at the present writing he is worse than he was before the injections were started. He has also had three attacks of temporary insanity during the past four months during which time he had to be watched very closely to avoid doing injury to himself and others.

CASE 1905. Male. Age 33. Single. Inmate of Home. (P. H.)

Family History.—Father died of apoplexy at 34. Mother dead but cause unknown. Mother had frequent fainting spells and an aunt was epileptic.

Personal History.—Normal birth. Began to walk at fourteen months; measles at nine and diphtheria at ten, but both in mild form. Was kicked on forehead by a cow sometime during the childhood but at what age is not positive.

Also claims to have fallen from a barn during his boyhood but no scars are present as the result of same. Has worked in different private institutions in order that he might get cured. Is mentally quite bright and also in fine physical condition.

Epileptic History.—Attacks date back to the age of 25 when he was noticed to be acting queer at different times.

Attacks are in the form of psychic epilepsy, although in the mild delusionary form. They occur about once or twice a week and the patient has never had any major attacks until within the past three months during which time he has had one each month.

Effect of Crotalin.—Attacks as I said before have become more severe in form but the mental condition is not effected from these at the present time. He still continues to have the same number of minor attacks and in fact no improvement in them can be noticed. Dr. May's solution was used in this case.

CASE 298. F. H. Single. Age 23. Inmate of Home.

Family History.—Could not be obtained as both parents are dead and no living friends or relatives are known about.

Personal History.—Patient was admitted here when he was seven years of age with no epileptic history for him. However he had his first convulsion shortly after and it is from that time on that we have been able to keep his record.

Epileptic History.—Has mostly major attacks and they are not very severe, having no *aura* with them. Attacks have occurred on the average of eight severe per month with a few minor attacks quite frequently.

This has been his general average for the past seven years with the exception of one year when he had 252 attacks.

Effects of Crotalin.—Attacks became less frequent and not quite so severe during the injection of Dr. May's solution for 42 weeks but his mental condition did not seem to improve any. He developed a very obstinate case of status one month after the injections were discontinued and died as a result of same. He had 100 of the major attacks during the same.

CASE 949. A. S. Male. Single. Age 29. Inmate of Home.

Family History.—Parents born in Russia. Mother living and in good health, but father died of cancer at the age of 54. History otherwise negative.

Personal History.—Youngest of nine children. Had measles and whooping cough during childhood. No spasms during childhood. Had fall during infancy which is given as a possible cause.

Epileptic History.—Seizures started at the age of fourteen and have been increasing ever since. At first they occurred at the rate of three or four times a week then they gradually went to several a day and at the time the injections were started he would average two severe and one light per week. He has a very characteristic *motor aura* before each attack which he calls a shaking spell. These appear from two minutes to one-half hour before each attack during which time he shakes and jerks so that it is almost impossible for him to set still. Five grains each of potassium bromide and chloral hydrate if given at the start of the *aura* will in most cases prevent the attack from coming on.

Effects of Crotalin Treatment.—Attacks have decreased in number a great deal and the patient seems much improved in many ways.

However the whole credit can not be given to the crotalin as a great number of the attacks were controlled from the administration of the above named prescription. Dr. May's solution was given in this case.

CASE 1841. L. C. Male. Single. Age 23. Inmate of Home.

Family History.—Parents of Canadian birth. Patient is the twelfth child in family of seventeen, and all living and in good health.

One aunt insane, and grandparents were related by blood.

Personal History.—Normal birth; all eruptive diseases of childhood and otherwise nothing abnormal.

Epileptic History.—First attack at the age of eight and these continued in the mild form until the age of twelve when they changed to the severe form. He averaged about one a month at first and then they changed to one severe and two light attacks when he was started on the crotalin treatment.

No *aura* preceded the attacks and the patient very seldom falls enough to hurt himself.

Effect of Crotalin.—Injections of Dr. May's solution for seventeen weeks did not improve the condition at all and in general he got so bad that the injections had to be stopped for fear of the patient going into a case of status. He only averaged one or two attacks a week during the treatment but laid around in such a stupor after each attack that I deemed it best to discontinue the treatment and resort to some other form of medication.

CASE 1156. E. G. Male. Single. Age 31. Inmate of Home.

Family History.—Mother living but nothing is known of father except that he was a Canadian by birth, and that he was an alcoholic.

Six children in family. No epileptic history in the ancestor's history.

Personal History.—First attack at the age of four years and has not had any other illness that accompanies childhood. Fell from a high chair when a child and injured head. Normal birth but did not begin to talk until the age of four. Is at the present time a good worker and always willing to do anything except when these attacks come on.

Epileptic History.—Seizures began at the age of four as stated above and then he did not have any more until the age of fifteen.

Attacks have averaged one major each week which always confines him to bed for at least twenty-four hours, during which time he also has minor attacks too numerous to mention. However these minor attacks do not seem to be of any consequence as he always recovers from the one major attack without any regard to the number of minor ones.

Effect of Crotalin.—Injections of Dr. May's solution for sixteen weeks seemed to have quite a beneficial effect at first but towards the last they became worse and the medicine had to be withdrawn.

His mental condition never was very good but his physical condition is very good and did not seem to be affected by the injection treatment which may be partly attributed to the fact that it was not given for any great length of time.

CASE 414. F. E. Male. Single. Age 32. Inmate of Home.

Family History.—Parents both of Swedish birth; mother died of tuberculosis; father a pronounced alcoholic; four children in family one of which died from tuberculosis also. Epileptic history negative.

Personal History.—Normal birth; and no data as to the presence of any of the diseases of childhood before his admission here.

Is quite industrious, and epileptic attacks do not seem to have retarded his mental condition any during the past few years.

Epileptic History.—First attack at the age of seven years and continued at the rate of one or two a week until at the present time he is having twice as many as before the treatment. Most of them are of the major variety without any *aura* and recovery from same is usually in about ten or fifteen minutes.

Effect of Crotalin Treatment.—Injections of Dr. May's solution for sixteen weeks caused no improvement whatever, either in the number or severity of the attacks, so injections were discontinued. He usually had quite a characteristic reaction from each dose and would have an attack as soon as the arm became sore.

CASE 1910. H. W. Male. Single. Age 23. Inmate of Home.

Family History.—Parents both living. Nine chil-

dren in family all of which are living and in good health. Both parents have had attacks of acute articular rheumatism. Epileptic history in all generations is negative.

Personal History.—Birth normal. Teething began the eighth month; measles at four years. Very irritable and at times temporarily insane. Also addicted to masturbation. Health generally good and rather intellectual in his general appearance.

Epileptic History.—First attack was at the age of eighteen years and was supposed to have been caused by insolation. Has received all sorts of treatment by different physicians during that time but with no results.

Has both the major and minor attacks and have increased in number and severity ever since the start which at the start of the injections numbered two severe and two light attacks per week. A violent disturbed spell usually preceded each attack at which time he had to be watched very closely.

Effect of Crotalin.—Under injection of Dr. May's solution for twenty-six weeks he showed no improvement in the least, either in the number or severity of the attacks. After the first injection he had one severe and four light attacks and then they continued at that rate every week, except four, during the treatment. After the twenty-fifth injection he had an attack of eight major ones which seemed to be much more severe than any he had ever had. His mental condition became worse after this and was finally sent to an insane asylum where he still continues to have about the same number.

CASE 1702. J. B. Male. Single. Age 33. Inmate of home.

Family History.—Mother and father still living and in good health. Eight children in family with negative epileptic history. One uncle on the mother's side had epilepsy when young but he did not die until he was 82 and that his death was due to old age.

Personal History.—Birth normal. Measles and whooping-cough during childhood.

Epileptic History.—Attacks started at the age of thirteen and occurred at the rate of one every three months for a few years and then he began to have them every few days. Attacks now occur mostly in the morning when arising and these make him stupid for the remainder of the morning. They are all of the major variety and he either falls on the occiput or the supra-orbital ridge over either eye. Both of these points are constantly scarred, as one injury is no more than healed until another accident occurs at the same point. He is of a very disagreeable disposition and especially after each seizure.

Effects of Crotalin.—Injections of Dr. May's solution every week for twenty-seven weeks caused no improvement in any of the symptoms and his mental condition is much worse. The attacks are no lighter in severity and some months he averages more severe attacks than he did prior to the injection treatment. Most of the injections were followed by one or two severe attacks as soon as the arm became sore and he had to be confined to bed for several days at a time on account of such a large number of seizures.

CASE 1300. C. H. Male. Single. Age 29. Inmate of Home.

Family History.—Mother and father living and in good health, but mother is mentally deficient ever since the birth of this child which, however, can not be accounted for in any way.

Patient is the youngest of three children all of which are in good health and negative epileptic history. One aunt on father's side an epileptic.

Personal History.—Normal birth; began to walk at three; and to talk about the same time. Has also had the usual children's diseases together with quite a severe attack of appendicitis at the age of fourteen.

Mentally he is more backward than deficient; has an enormous appetite and also uses tobacco to excess.

Epileptic History.—Has had epileptic attacks for the past fifteen years all of which are of the *grand mal* type. They first appeared as often as two, or three a week but just before the treatment was started they would occur about one per week. Has had an interval of three weeks without any attacks.

Effect of Crotalin.—Condition gradually became worse after the first injection but they were continued until he had received sixteen doses of Dr. May's solution. He was averaging twice as many attacks at that time and now is having about one-half as many without any form of treatment whatever and it has been five months since he has taken any form of epileptic medication.

CASE 1153. W. S. Male. Single. Age 26. Inmate of Home.

Family History.—Mother died of tuberculosis. Epileptic history is negative. Father an alcoholic. Three other children died of tuberculosis.

Personal History.—Patient was the oldest of four children. Had meningitis at the age of nine and following this at the age of ten was his first attack of epilepsy.

Epileptic History.—Attacks started at the age of ten as stated above and have been growing worse all the time with the exception of a few spells of remission which he has once or twice a year. Most of them are of the minor type and occur in large numbers when he once starts to have them. He has a peculiar staggering gait resembling that of palsy; mental condition very poor, and has transitory delusional states during which time he imagines that he has all the diseases that are described in "Osler." He has tuberculosis although at the present time not in the coughing stage.

Effect of Crotalin Treatment.—He received injections of Dr. May's solution each week for twenty-seven weeks without any improvement.

After the injections were discontinued he was taken off all other epileptic medication and since that time (about three months) he has had less seizures than he has had for two years. He has picked up in weight and looks better physically but his mental condition is no better.

The latter improvement, however, manifested itself after the crotalin was discontinued.

CASE 1223. J. C. Male. Single. Age 14. Inmate of Home.

Family History.—Nothing can be obtained as to patient's history as parents could not be located when child was admitted to the Institution from the State Public School at Coldwater.

Personal History.—He was admitted to our Institution at the age of seven years and since that time has been in good health.

Epileptic History.—Has had epilepsy for the past thirteen years and the first one was supposed to have been caused by a fall during childhood.

The first year he had six major attacks and then he did not have any more for two years. The following two years he had three of the major attacks and last year he had fifty-one of the same.

He has a typical gastric *aura* before each attack

and after each one he is mentally depressed for two or three days.

Effects of Crotalin.—Injections were given every seven days for twenty-seven weeks with no improvement and so they were discontinued. Dr. May's solution was given in each case.

CASE 1562. A. M. Male. Single. Age 21. Inmate of Home. (Ethiopian.)

Family History.—Father and mother both living, but their whereabouts is unknown, at the present writing. However, patient says that he remembers all his relatives back as far as his grandparents and knows that none of them were afflicted with epilepsy. The latter information was also given by an aunt of the patient who seems to be perfectly reliable in her statements.

Personal History.—Nothing definite can be obtained as to his history during childhood but for the past six years he has been in good physical condition with the exception of the epileptic attacks.

Epileptic History.—His first attack dates back to the age of fifteen when he claims it was brought on by act of masturbation. He still attributes any attacks that he may have to some form of sexual excitement which he can not overcome, no matter how hard he tries. However, he has been watched closely and seen to have attacks when there was no form of sexual excitement to aggravate the attack.

He has no *aura* before the attacks and averaged about two of the *grand mal* type per week before the crotalin was started. Tonic and clonic convulsions accompany each attack and a post-epileptic sleep from one to two hours follow each attack.

Effects of Crotalin.—Weekly injections of Dr. Spangler's solution made no apparent change in his condition during the twenty-seven weeks that it was given. He averaged eleven of the major attacks each month during the treatment which was more than he was having six months prior to the injections. His mental condition remains about the same as also his physical condition.

CASE 1282. F. M. Male. Single. Age 21. Inmate of Home.

Family History.—Parents of German birth and both living. Father addicted to the use of alcohol quite freely for five years prior to the birth of this child. Paternal grandfather also an alcoholic. Twelve children in family, nine of whom are living and all in good health.

Personal History.—Normal birth, and had none of the children's eruptive diseases. Started to walk at fourteen months and the child seemed to be normal with exception of being a little small for his age.

Epileptic History.—Had his first seizure during the first week of infancy and then did not have any until the age of thirteen when he started to have attacks of *petit mal*. Since that time he has had several attacks of the same type and would average 75 to 100 per month and then he would have monthly remissions that would not average more than eight or ten of the same type. He also has a few of the *grand mal* type but these are of little consequence. Has horizontal nystagmus which seems to be gradually getting worse.

Effect of Crotalin.—Attacks have averaged four times as many during weekly injections of Dr. Spangler's solution for twenty-seven weeks.

He has been having more of the major attacks and less of the minor in the general average, although he has a great many more of each than he averaged before. The first month of treatment he had one major and twenty-six minor attacks; and second month he had sixty

major and 116 minor and the third month he had only two minor attacks.

Mentally he is not improved any.

CASE 1805. R. W. Male. Single. Age 25. Inmate of Home.

Family History.—Negative epileptic history. Father an alcoholic. Grandmother had scrofula and mother was afflicted with rheumatism.

Personal History.—Birth was instrumental. No spasms during childhood; teething began at eight months; whooping-cough at four years and measles at five months. Is the youngest of four children all of whom are normal.

Epileptic History.—First attack occurred at the age of eighteen following an attack of la grippe and the second attack did not occur until seven months later. Attacks then occurred about three times a week until the last year when they have averaged twenty per month. They are most of the major type and not preceded by any *aura*. Had an operation two years ago at which time a trephine was done without any benefit.

Effect of Crotalin Treatment.—Weekly injections of Dr. Spangler's solution for forty-six weeks caused no improvement and on the general average he is worse than he was on the start.

He has more of the major attacks and all are much more severe.

His mental condition is very bad, as about two-thirds of his time he now lies in a stupor.

CASE 1924. W. K. Male. Single. Age 21. Inmate of Home.

Family History.—Father died from asthma at age of sixty-five. Mother still living and in good health. Nearly all the relations on the father's side have some form of heart trouble. Father addicted to the use of alcohol for some time prior to his death.

Personal History.—Natural birth; teething began at six months. Diseases of childhood were mild in character and health was generally good until the first seizure at the age of seventeen.

Epileptic History.—First seizure at the age stated above but cause was unknown. The second attack occurred in about three weeks.

These attacks are most all preceded by a characteristic motor *aura* which if seen in time can be prevented by the administration of a dose of the same mixture as referred to in case 949. Attacks occurred at the rate of one major attack each week prior to the crotalin treatment when he was receiving nothing but the bromide treatment.

Effect of Crotalin.—Injections of Dr. Spangler's solution for forty-six weeks seemed to make the patient worse instead of better as he averaged three times as many attacks during the treatment as he had been having previously. All the latter attacks did not fully develop as he was given the above named prescription in some cases which would abort it, but nevertheless it would have been a typical major attack if it had not been given.

His mental condition does not seem any worse but physically he is not in as good condition as before.

CASE 1245. Female. Single. Age 14. (H. B.) Inmate of Home.

Family History.—Mother insane and father feeble-minded. Two children in family but no history is obtainable as she was raised by another woman and could not give any information to be depended upon.

Personal History.—Began to walk at fourteen months. Measles at six but no other diseases of childhood.

Tabulation of Cases Treated.

Patient's Initial and Number	Sex	Age	Cause	Type	Duration of Disease	Average number of Attacks Before Treatment	Date of First Dose	Frequency of Infections	Total No. of Infections	Minimum Dose	Maximum Dose	Average Number of Attacks After Treatment	General Results
R.L. (1889)	M	21	Hyperpyrexia	G.M. and P.M.	14 Years	18-1L Per Week	4-28-13	7 Days	42	1/200 G.R.	1/50 G.R.	Same	No Mental Improvement
T.H. (1483)	M	17	Unknown	G.M.	6 Years	One Serial Per Month	4-28-13	7 Days	42	1/200 G.R.	1/50 G.R.	3S in 2 Months	Mental Improvement
G.S. (1810)	M	30	Unknown	G.M.	18 Years	4S-1L Per Week	4-28-13	7 Days	29	1/200 G.R.	1/50 G.R.	9S-9L Per Month	Worse
P.H. (1905)	M	33	? Head Injury	Psychic	8 Years	1L Per Week	4-28-13	7 Days	42	1/200 G.R.	1/50 G.R.	1S-3L Per Month	No Improvement
F.H. (298)	M	22	Unknown	G.M. and P.M.	214 Years	2S-1L Per Week	4-28-13	7 Days	42	1/200 G.R.	1/50 G.R.	6S Per Month	Died in Status (100s) one Month After Treatments Were Stopped
A.S. (949)	M	29	Unknown	G.M. and P.M.	14 Years	2S-1L Per Week	4-28-13	7 Days	42	1/200 G.R.	1/50 G.R.	2S-4L Per Month	Slight Improvement
L.C. (1841)	M	23	Insolation	G.M. and P.M.	15 Years	1S-2L Per Week	8-11-13	7 Days	17	1/200 G.R.	1/50 G.R.	1S-1L Per Week	No Improvement
E.G. (1156)	M	31	Fall	G.M.	26 Years	1S Per Week	8-18-13	7 Days	16	1/200 G.R.	1/50 G.R.	Same	No Improvement
F.E. (414)	M	32	Unknown	G.M. and P.M.	25 Years	1S-2L Per Week	8-18-13	7 Days	16	1/200 G.R.	1/50 G.R.	2S-2L Per Week	Worse
H.W. (1910)	M	23	Insolation	G.M. and P.M.	5 Years	2S-2L Per Week	4-28-13	7 Days	26	1/200 G.R.	1/50 G.R.	Same	Became Insane, Sent to Asylum
J.B. (1702)	M	33	Insolation	G.M.	19 Years	2S Per Week	4-28-13	7 Days	27	1/200 G.R.	1/50 G.R.	9S-1L Per Month	Worse
C.H. (1300)	M	29	Unknown	G.M.	15 Years	2S Per Week	4-28-13	7 Days	16	1/200 G.R.	1/50 G.R.	2S Per Week	Worse
W.S. (1153)	M	26	Meningitis	G.M. and P.M.	15 Years	1S-21L Per Week	4-28-13	7 Days	27	1/200 G.R.	1/50 G.R.	3S-4L Per Week	Attacks More Severe
J.C. (1223)	M	14	? Fall	G.M.	12 Years	2S Per Week	4-30-13	7 Days	27	1/200 G.R.	1/50 G.R.	Same	No Improvement
A.M. (1562)	M	21	? Masturbation	G.M. and P.M.	6 Years	2S-2L Per Week	4-28-13	7 Days	27	1/200 G.R.	1/50 G.R.	3S-1L Per Week	Attacks More Severe
F.M. (1282)	M	21	Unknown	G.M. and P.M.	Life Time	1S-11L Per Week	4-28-13	7 Days	27	1/200 G.R.	1/50 G.R.	44S-88L In One Mo.	Worse
R.W. (1805)	M	25	Unknown	G.M.	7 Years	5S Per Week	4-28-13	7 Days	46	1/200 G.R.	1/50 G.R.	6S-1L Per Week	Worse
W.K. (1924)	M	21	Unknown	G.M.	4 Years	1S Per Week	4-28-13	7 Days	46	1/200 G.R.	1/50 G.R.	3S Per Week	Worse
H.B. (1245)	F	14	Unknown Mother Insane	G.M. and P.M.	11 Years	2S-10L Per Month	6-2-13	7 Days	41	1/200 G.R.	1/50 G.R.	5S-9L Per Month	Attacks More Severe
Z.P. (1362)	F	27	Meningitis	G.M. and P.M.	25 Years	3S-3L Per Week	6-2-13	7 Days	41	1/200 G.R.	1/50 G.R.	Same	No Improvement
W.L. (1914)	M	28	Unknown	G.M. and P.M.	19 Years	2S-1L Per Week	7-14-13	7 Days	31	1/200 G.R.	1/50 G.R.	2S Per Week	No Improvement
F.W. (1134)	M	32	Unknown	G.M. and P.M.	12 Years	5S-6L Per Month	8-11-13	7 Days	17	1/200 G.R.	1/50 G.R.	1S-4L Per Week	No Improvement

L—LIGHT, S—SEVERE.

Epileptic History.—No traumatic history obtainable. Seizures began at the age of three, and no possible cause could be ascertained. Has both the major and minor attacks since admission to the Institution and has averaged two severe and ten light attacks each month since that time. No *aura* occurs and each attack leaves the patient quite dull, mentally.

Effect of Crotalin.—Injections of Dr. Spangler's solution for forty-one weeks proved of no benefit as the patient was averaging twice as many of the major attacks at the end of the treatment as she was before. She also continues to have about the same number of minor attacks and the mental condition remains about the same.

CASE 1362. Z. P. Female. Single. Age 27. Inmate of Home.

Family History.—Father living. Mother dead and cause unknown. Negative history as to epilepsy in all her ancestors. Five children in family.

Personal History.—Normal birth; began to walk at thirteen months and to talk at one and one-half years. Had all the diseases of childhood except scarlet fever. Also had spinal meningitis at the age of twenty-one months.

Epileptic History.—Started to have attacks immediately after the attack of spinal meningitis and continued to have them at the rate of one per month until the age of twelve when they discontinued completely until the age of sixteen. Since that time and up to the time the injections were given she has averaged three severe and three light each week.

Effect of Crotalin.—Weekly injections of Dr. Spangler's solution for forty-one weeks did not cause any improvement whatever either in the number or severity of the attacks. Her mental condition before the crotalin was quite good and at the present time does not seem to have been affected either way.

CASE 1914. W. L. Single. Male Age 28. Inmate of Home.

Family History.—Father died of tuberculosis at the age of forty-eight; mother's cousin had epilepsy; and also an uncle on father's side. Grandparents addicted to use of alcohol. Ten children in family, seven of which are living and with negative epileptic history.

Personal History.—Patient is a twin child, the other being normal. Has had all diseases of childhood including diphtheria. Also admits exposure to and contraction of syphilis and at the present time is being treated for it. Had a trephine made in skull several years ago as a cure for his attacks but no results have been obtained from it as yet.

Epileptic History.—Attacks date back for nineteen years, and second one occurred about six weeks later. He has both the major and minor attacks but mostly the former and he generally has them in series of six, eight, or ten and then he will have an attack of epileptic insanity for a week during which time he has to be put in a quieting room. He also has free intervals during which time he seems perfectly normal.

Effect of Crotalin.—Injections for thirty-one

weeks of Dr. Spangler's solution caused no improvement and so they were discontinued. At the present time he seems much better and has not had any epileptic medication for six weeks.

CASE 1134. Male. Single. Age 32. (F. W.) Inmate of Home.

Family History.—Father born in Germany, mother American and both are living. Patient is the only child and no epileptic history can be obtained from parents as to its presence in any of the ancestors.

Personal History.—Normal birth; began to talk at ten months; to walk at eleven month, and had all the diseases of childhood before the age of fifteen. Is quite bright and plays the cornet fairly well.

Epileptic History.—Dates back to the age of twenty when they started for some unknown cause. He at first had them about once a month and then they became more frequent until two years ago when they returned to their normal ratio. He has both varieties and no *aura* with them. Very seldom falls and recovers from the effects very soon afterwards.

Effect of Crotalin.—No improvement after seventeen injections so they were discontinued. He was not made any worse as far as could be ascertained but as he was having a few more seizures than usual we thought it best to discontinue it before his mental condition should become involved.

CARCINOMA OF THE BREAST.*

STATISTICS OF CARCINOMA OF THE BREAST IN MICHIGAN FOR THE PAST TWENTY-FIVE YEARS; DIAG- NOSTIC POINTS NOT USUALLY OBSERVED; REMARKS ON METASTASIS.

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Vital statistics show a marked increase in the death rate from cancer throughout the civilized world. The following statistics show that carcinoma of the breast in Michigan shares in this increase. The chart below, based on 100,000 population, shows a curve covering a period of twenty-five years (from 1885 to 1909 inclusive). The lowest point came in 1888. This means that in that year 1.52 per cent. of individuals out of every 100,000 died of carcinoma of the breast, or a total of seventy-four. It is readily seen that the curve rises gradually, reaching the highest point (9.2 per cent.) in 1909, representing a total of 212 deaths. Of the two rows of figures at the bottom of the chart the lower one gives the total number of

*Read before Michigan State Medical Society, at Muskegon, 1912.

deaths from carcinoma of the breast for each year, the upper giving the percentage of deaths from breast carcinoma out of the total deaths from cancer of all kinds. For example, in 1885, 11.5 per cent. of deaths from cancer were from carcinoma of the breast.

time all cancers are local, at which time they are curable. Theoretically that means that all these women could be saved. Practically, however, I doubt if we ever can expect the mortality from this diseases to be reduced to nil. Often these tumors are not discovered until they have

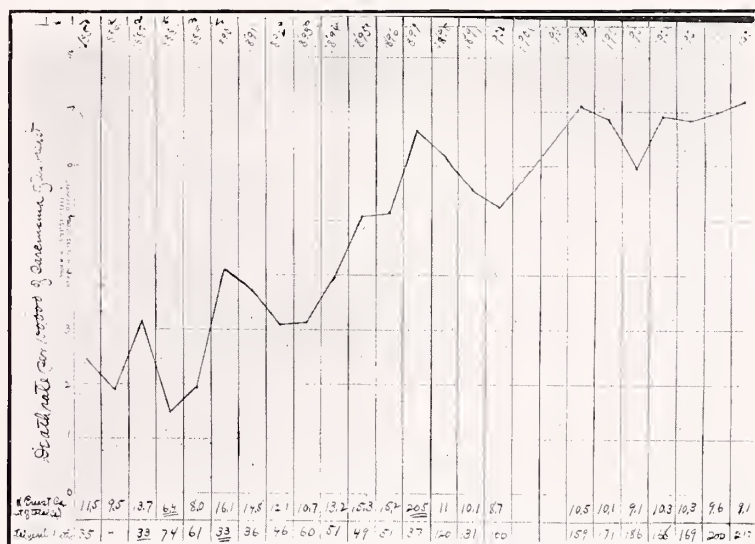


Fig. 1. Death rate per 100,000 of carcinoma of breast.

In summing up this percentage row the lowest and highest points were reached in 1888 with 6.4 per cent., and in 1897 with 20.5 per cent., respectively. In 1897 then, one-fifth of all the deaths from cancer were from carcinoma of the breast. The average yearly number of deaths from cancer of the breast for the last ten years of the series was one hundred sixty-eight. The average for the previous ten years was fifty. The average for the entire twenty-five years 99.5 per cent., or in round numbers, 100 yearly deaths for twenty-five years. The increase of the latter over the previously mentioned decade I believe is not entirely actual, but to be accounted for partly by a more thorough report of cases.

It was impossible to get fully specified statistics for each year, since only about one-half of the deaths from cancer was specified as regards location, the remaining half being reported simply as "cancer." It is likely that carcinoma of the breast occurred in about the same proportion in the unspecified number; therefore, I have made computations from the known figures and have included them to make a total. These figures are large enough to make it probable that they are fairly accurate, although perhaps not entirely so.

It is important for us to note that 100 of our women are dying each year of carcinoma of the breast (168 the yearly average for the past ten years.) It would be interesting to know what percentage of these cases are operated; furthermore, what percentage are operated early enough to effect a cure. We know that at one

reached considerable size, especially in certain classes of people.¹ There may already be glandular involvement, in which case it is impossible to exclude more remote metastasis. It is even possible to have axillary tumors, of breast origin, before the primary tumor can be made out. We have seen two such cases in the past year. Such cases, of course, are exceptions, yet seeing two in a single year should prompt one to keep this possibility in mind and examine the axilla routinely in all cases, even though nothing is discernable in the breast.

For analogy we might mention the well known fact of the not infrequent occurrence of a minute primary carcinoma of the gastro-intestinal tract, with metastasis in the liver and possibly in other organs. In fact, these metastasis may be enormous and widely distributed.

In nearly all cases, however, the primary tumor is discovered early, in many cases before the occurrence of secondaries. There is no excuse for error in diagnosis, as, for example, in a beginning carcinoma of the visceral organs, where it is impossible to directly examine the parts involved. The patient as a rule consults a doctor as soon as a breast tumor is discovered, but he often likes to make himself believe it is benign and advises to "wait and see" what it does, which naturally pleases the patient. Every breast tumor should be considered malignant until proved otherwise. We can never reduce the mortality until this fact is recognized.

1. In this regard, however, we may look for betterment as a result of the present popular educational campaign that is being carried on all over the country.



Fig. 2. Acute inflammation followed by abscess.

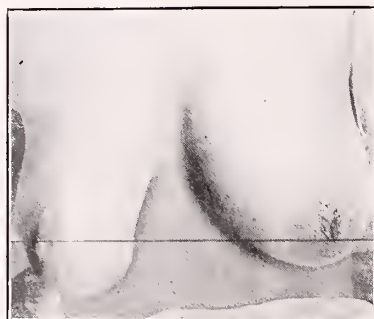


Fig. 5. Galactoscele. Nipple below the line.



Fig. 8. Cystic sarcoma. Nipple below the line.



Fig. 3. Pyogenic lactation mastitis.



Fig. 6. Fibro-adenoma. Nipple below the line.



Fig. 9. Abscess with retraction of nipple but no elevation.



Fig. 4. Abscess with retraction of nipple but no elevation.



Fig. 7. Myxoma. Nipple below the line.

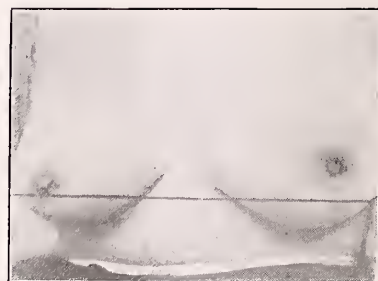


Fig. 10. Retraction. Elevation, changed areola.



Fig. 11. Carcinoma simplex. Elevation, areola change.



Fig. 14. Advanced carcinoma. Elevation retraction and reduced areola.



Fig. 17. Adeno-carcinoma. Elevation. Retraction.

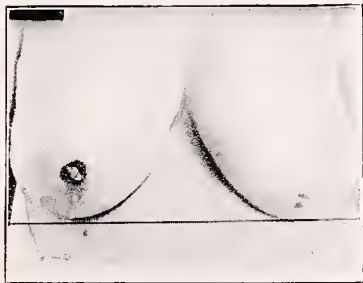


Fig. 12. Elevation. Retraction.



Fig. 15. Beginning scirrhous carcinoma. Elevation but very little retraction.

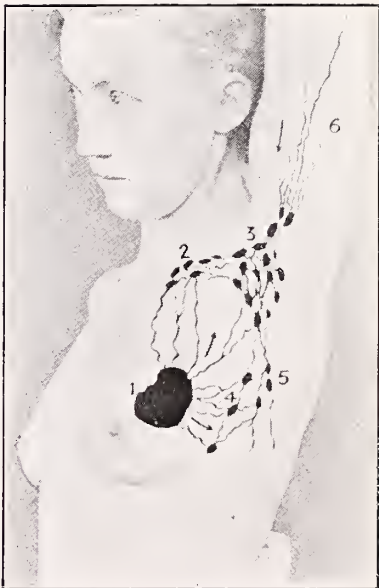


Fig. 18. Lymphatics.



Fig. 13. Scirrhous carcinoma. Elevation, changed areola, retraction.



Fig. 16. Scirrhous carcinoma. Elevation and retraction.

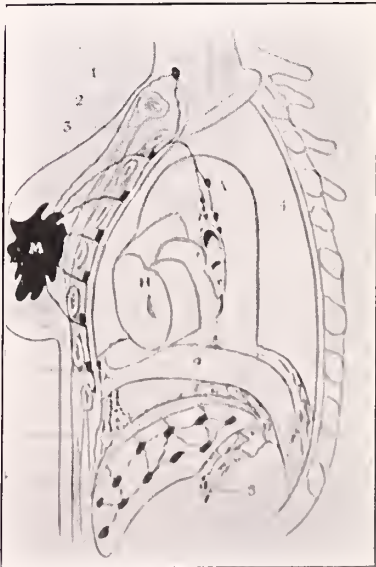


Fig. 19. Lymphatics.

Judd² has shown that eighty-five per cent. of cases of breast carcinoma can be cured if operated early. Such a statement involves upon us a great responsibility. According to this statement the number of deaths each year from this disease in Michigan would be reduced from one hundred to fifteen.

DIAGNOSTIC POINTS.

There are some clinical diagnostic points in breast carcinoma, which I believe are not usually observed and which I have not seen mentioned in our American literature; viz. (a) changes in the areola and (b) elevation of the nipple. Very early in nearly all these cases the areola will show slight changes in contour, the border presenting slight irregularities. With the advancement of the process the irregularities become more marked and the size may diminish, even to the degree of almost total disappearance. (See illustrations). The nipple in a large percentage of cases will be drawn to a higher plane than the normal one, the degree, of course, depending upon the amount of contracture. We see it at its maximum in the schirrons variety. Compare figures two, three, four (inflammatory, five (galactoceles), six or seven (benign tumors) and eight (cystic sarcoma) with the succeeding carcinomatous breasts, and note the contrast. All the carcinomas are above the normal nipple line, whereas the others are below. This is not without exception but it is the rule, and I believe more constant than many other signs (note the alveoli).

Some authors mention "atrophy of the breast" in connection with breast carcinoma, also "retraction of the breast" has been mentioned. Both of these conditions occur and in reality bring about "elevation of the nipple." But as a diagnostic sign neither of the former is so plainly perceptible as elevation of the nipple.

In the earliest stages of contracture it is difficult to make out atrophy or retraction, yet it is easy to recognize elevation of the nipple when compared with its fellow.

So called "pig skin" is another evidence of the same phenomena and might be classed as the "minute," while elevation of the nipple might be classed as the "gross" manifestation of contracture.

In breast carcinoma contracture in any stage is probably the most important sign we have. It is seen in most late cases and in many early ones. If none is present we may well question the diagnosis of carcinoma, although not definitely exclude it.

METASTASIS.

Ordinary, metastasis from breast carcinoma follow the lymphatics centrifugally along the natural paths into the axilla (see illustration), less frequently into the skin itself and the clavicular glands. The sternum and ribs might be included with the immediate metastasis. They may extend along the lymphatics to the plura, mediastinum, lungs, liver, and other organs.

They may find their way into more remote parts, either through the lymphatics or circulatory systems or both (a point which is still disputed), particularly into the osseous system and more particularly into the vertebral column, which is characteristic of carcinoma of the breast. Most authors casually mention the occurrence of metastasis in the osseous system but rather few speak of the vertebral column as the point of predilection. Murphy³ calls attention to metastasis in the osseous system, particularly in the long bones. It is true that the long bones are frequently involved but it is not characteristic for these metastasis; therefore, such a statement leaves a wrong impression. Carcinoma of other organs, such as the prostate, thyroid and bronchi, also hypernephromata, have a peculiar tendency to send

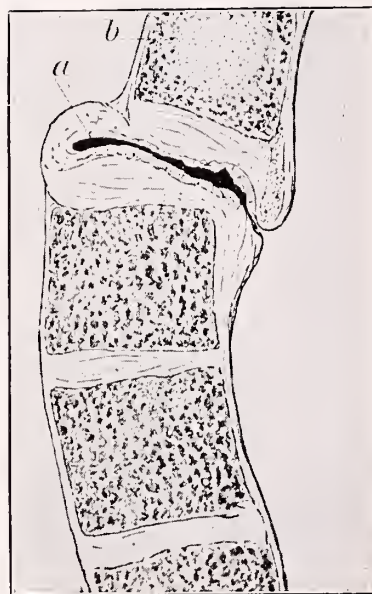


Fig. 20. A. Osteoblastic metastasis.
B. Osteoclastic metastasis.

their metastasis into the osseous system, but the point I wish to emphasize is that none have the tendency to involve the vertebral column as much as breast carcinoma with the possible exception of prostate carcinoma and these according to Courvoisier⁴ should be classed as immediate of regional metastasis.

3. Murphy, J. B. *Surgical Clinics*, Feb., 1912, p. 10.

4. Walter Courvoisier *Das Prostata Carcinom*. Inaugural Dissertation, Basel, 1901.

2. Judd, E. S. *Collected papers Mayo Clinic*, 1905-09, p. 366.

Figure 20 shows vertebral metastasis, an osteoblastic above and an osteoclastic below, the latter having nearly destroyed an entire vertebra.

Following is a short history of a patient seen a year ago:

Miss G. age 38. General history negative until present trouble. Three years ago was operated (radical) for tumor of the breast. Six months later commenced to have pain along the entire length of the spinal column, which has persisted, increasing gradually in severity—the past year very severe. The past six months pain in the right thigh and leg, gradual loss in weight and strength. bed ridden the past year.

Examination.—Small framed woman, thin and cachectic. Heart, pleura, lungs and abdomen apparently negative. (X-Ray examination of the chest was not made). Local returns in the skin. Soreness and tenderness to pressure and tapping along the entire length of the sternum. Second rib on the right side fractured from light pressure. Tenderness and soreness along the entire length of the spine.

A letter one month later stated that the patient was no better and had recently had a great deal of pain and tenderness on one side of the head above the ear (a probable osseous metastasis). A later report stated that the patient had died three months from the time of examination.

Undoubtedly this was a case of extensive osseous metastasis, involving the vertebral column, sternum, ribs and skull, and quite probably other organs and tissues.

I believe that many of the cases, speaking particularly of the operated ones, that do not do well but gradually lose strength and weight until death takes place (often about three years after operation) have osseous metastasis although in most instances it may be impossible to make out anything definite upon examination.⁵

I am very much indebted to our State Librarian, Mrs. Mary C. Spencer, for the interest she has shown and the material help she has given in furnishing statistics.

The cuts shown in this paper were taken from various German and American Works.

VACCINES AND IMMUNITY IN THEIR RELATION TO SURGERY.*

O. A. HART, M.D.
ST. JOHNS, MICH.

First, I would say that my handling of this subject is more from the standpoint of the surgeon than that of the bacteriologist and while we prepare our own autogenous vaccines still, as my time is more devoted to surgical practice than to laboratory work, I can best deal with it from this aspect.

5. Lately we have begun to ray the vertebral column and upper ends of the femora in all cases of some standing before operation. It is, of course, useless to operate in the event of bone metastases.

*Read at Owosso before the Shiawassee County Medical Society on March 3, 1914.

Surgery has made many advancements within the past half century and we now diagnose with accuracy and treat with success many diseases which formerly were considered incurable. One of the most important advancements has been the additional knowledge as to the causes and prevention of sepsis. Later came the discovery of the X-Ray, invention of cystoscope, and various other instruments of precision, and the increased use of the microscope with the many facts it has revealed in pathology, bacteriology, etc., greater knowledge of blood changes, as well as many other things well known to us all. All these have been factors in this advancement but when we come to consider the treatment of infectious processes, both local and constitutional, such as abscesses, carbuncles, peritonitis, septicemia, etc., with which the surgeon is compelled constantly to deal, we realize that during the past fifty years but little advancement has been made. At least up to the past seven years, about the only thing has been a thorough appreciation of the value of drainage and supportative treatment. This, as carried out in the best modern manner, has been all we could do up to the time of the work done by Ehrlich, Wright and others in the study of methods of immunity and the elaboration of the vaccine treatment.

A great deal had been done previous to this, I acknowledge, in the prevention of sepsis or infection, but absolutely nothing more of practical value in the treatment of this class of diseases.

Thus we come to the realization of the importance of these new methods in treatment and of these new aids to the surgeon, as well as the physician, in the treatment of disease. Furthermore, these methods are in harmony with nature and are an aid to her in her efforts to cure infectious diseases. The great drawback to all antiseptics, which are so often used in infections, is that if used strong enough to destroy the bacteria they also devitalize and destroy the tissues as well. On the contrary, the immune substances produced by nature in response to infection or vaccines are harmless to the tissues but efficient in destroying bacteria. Taking a case of local infection: we incise, remove necrotic material and drain and leave the rest to nature. She fortunately, under favorable conditions, produces under the stimuli of the infection, certain substances called "immune-bodies" which destroy the infectious bacteria and allow healing to take place. A study of these substances are of importance as well as of interest to those engaged in surgical or medical practice.

So far it has been found impossible to isolate the various immune-bodies called by Wright, "*antitropins*," and they have only been studied as they exist in the blood and can only

be differentiated by the different manner in which they exert their power when, in response to infections or vaccines, they are produced. Four of these substances are fairly well understood: 1st, agglutinins, which possess the power of causing an agglutinated or slumping of bacteria; 2nd, bactericidins, which kill the bacteria direct; 3rd, bacteriolysins, which dissolve the bacteria and 4th, but of most importance, opsonins, which when present in the serum of the blood, so act upon the bacteria as to render them susceptible to the phagocytic action of the leucocytes.

The first three of these, are distinctively anti-bacterial substances and are produced only in response to a certain limited number of bacterial infections, such as typhoid, colon, cholera and other bacteria. Opsonins on the other hand are more universal in their application, acting against all bacteria. In normal blood there is present a certain amount of opsonins, more or less, which act against bacteria in general, but when the formation of these substances is stimulated by infection with any one bacteria or a specific vaccine is injected, opsonins are formed which act only upon these special bacteria, thus showing that there are specific opsonins for specific bacteria. A careful study of these substances has shown what an important rôle they play in the curing of infections. For in the presence of any infection it is these substances, which, when produced in sufficient quantities and when conditions are favorable for them to come in contact with the infecting bacteria, result in a cure. Therefore, it is the business of the surgeon in bacterial infections to first insure the production or presence of the necessary immune bodies and secondly, to insure the presence of such favorable conditions as will enable the immune bodies to come in contact with the infecting bacteria and thus cure the disease.

Take such a local infection as an abscess which is produced first by the presence of bacteria in the tissues; secondly, by the stagnation of lymph and blood in the surrounding tissues. The leucocytes soon lose their phagocytic power and die and set free certain tryptic ferments in the tissue. These substances in the absence of circulation produce solution of connective tissue and the formation of pus, surrounding which is a wall of blocked lymph and blood channels. Thus there results a practical walling off of the infection from the surrounding tissue and from the rest of the body. The leucocytes in the pus have lost their phagocytic power and no new leucocytes can reach the infected area from the blood and lymph vessels, as all channels are blocked. Furthermore, the back pressure of the pus counterbalances the pressure of the systemic circulation and thus no chance is given nature to accomplish a cure by natural pro-

cesses. Some absorption of bacteria and bacterial toxins take place, sufficient in most cases to produce systemic symptoms and more or less stimulation in the opsonic or other anti-bacterial production in the blood.

The surgeon then steps in and by incising the abscess, gives outlet to the pus, thus relieving back pressure, and allowing the systemic circulation to force serum and phagocytes into the cavity. The serum containing the desired opsonins, enable the leucocytes to destroy the bacteria present. In some cases of local infections, such as carbuncles, where the induration and blocking is greater, this may fail to take place. In these cases, the use of Bier's hyperaemia, under right conditions, curetting or excision may be necessary, although farther injury to the tissues may not always accomplish the object sought.

Sir Almoth Wright, when confronted by this problem, devised a solution of one per cent. sodium citrate and four per cent. sodium chloride in distilled water,* which he found acted very favorably. The sodium citrate produced a precipitation of calcium salts in the lymph and thus prevented coagulation and obstruction. The sodium chloride produces a hypertonic solution which by osmotic action draws the lymph through the walls of the cavity when the obstruction has been removed. The opsonins and the phagocytes thus have a chance to accomplish their work. In my experience, I have found this solution to be of great value in all forms of infection, as a local application and as an irrigating fluid and have obtained far better results since using it than when previously using various antiseptic solutions.

We understand that the basic principle of immunity is this: that there is contained in the bodies of pathogenic bacteria, certain toxins, which when liberated in the blood or tissues of the body, stimulate the normal human mechanism to the production of the before-mentioned immune substances. Extended observation would indicate that these substances are produced in and from the connective tissues, therefore the toxins must reach these tissues to become effective. Vaccines are simply the bodies of dead bacteria in sterile normal salt solution with the addition of five-tenths per cent. of a preservative, usually lysol. The number of bacteria per cubic centimeters has been carefully worked by a count against normal blood cells and the dose of each vaccine has been worked out by repeated laboratory examination and repeated observation of clinical symptoms. The interval between doses is fairly well understood although each case is a law within itself and it takes careful observation and close judgment to decide as to this important matter.

Experience has proven that an autogenous

vaccine or one made directly from a culture of the infectious material is far more efficient than a stock vaccine, as bacteria with few exceptions have so many strains that one cannot always be sure of getting the right one in a stock vaccine. Further, the giving of many with the hope that some one will prove the right one is too much like going back to the old-fashioned shot-gun prescription.

Briefly, vaccines are indicated in the following conditions:

1. Localized infections.
2. Infections which by various processes have been rendered local in character.
3. Infections subject to intermittent auto-inoculation which cannot be checked.
4. Their use may be considered in generalized infections where the infection is in the blood stream. Vaccines are poisons and this fact must be remembered in their use.

They do not resemble antitoxines in the slightest degree in their action or use. Their use is to stimulate the production of such antibacterial substances as will result first in the destruction of infectious bacteria present in the bodies and second, in a more or less prolonged immunity to such infection in the future. These are their only uses and it at once becomes apparent that we must be guided by careful study, close observation and good judgment in each case in which vaccines are used, that we may avoid bad results and obtain at least a reasonable number of good ones. Their use should only be in conjunction with other suitable methods of treatment. As a rule, but with some exceptions, it has been found that the effects of a vaccine if injected into a person, infected with the same bacteria as the vaccine is made from, is to produce more or less local reaction with probably some constitutional disturbance, but the same vaccine, if injected into a healthy person or some one not infected with this germ, produces no reaction. Therefore, it is evident that the effect produced by these agents is not primarily due to the toxins they contain, but to some effect which is only produced when the individual injected is already infected with the germ, the toxins of which are present in the vaccine.

DOSAGE.

Now, as regards the dosage of vaccines, length of time between doses, reaction, etc., Wright and his assistants used as a guide to dosage and length of time, the opsonic index, which is made by comparing the phagocytic power of the patient's blood with that of a normal individual. The technic of this is given in all text books dealing with the subject. By taking many thousand indeces, he was able to establish the presence of what he calls the negative and the

positive phases and by careful observation of and comparison with the clinical symptoms, elaborated clinical methods of controlling the dosage and intervals between doses. This allowed of nearly as good results, without the necessity of making the time consuming indeces. The object to be gained is to get the least possible negative phase with the highest possible positive phase. Each dose should be used at the point of highest resistance from the last dose, and the doses so gauged as to get a still higher positive phase each time and so on to a complete immunity as shown by a cure.

The local reaction is of value in determining the size of dose and interval between doses. A severe reaction is an indication of too large a dose and no reaction at all indicates either one or two things: the dose is too small or the vaccine is not made from the right germ. A larger dose will soon determine this point. Constitutional reaction and an exacerbation of the disease is also a guide as to dosage and time. Take a case of furunculosis, an increase in the furuncles or the development of new ones is an indication of the negative phase and if severe, of too large a dose. It is a good rule not to give a dose so large as to cause severe local reaction, very great general disturbance or marked exacerbation of the disease and not to give another dose until the reaction from the previous dose has passed away with a distinct change for the better. If severe infections, a good rule is the sicker the patient the smaller the dose.

In constitutional infection the aim should be to use such a small dose and at such intervals so as to avoid the negative phase as much as possible and to get a continued rise in the opsonic powers. To accomplish this it is necessary to give small doses at frequent intervals, carefully correlated and controlled by the symptoms present and if necessary by the opsonic index.

The successful use of vaccines depends upon first, being sure of the right vaccine and this is best accomplished by using autovaccines when ever possible; second, by a careful suiting of the doses and interval between doses to the patient and the infection. This can only be accomplished by constant study of the clinical symptoms and local manifestations, due consideration of every point and the use of judgment matured by experience and observation. Many other points of interest might be mentioned, did time permit.

I have found in my own work in the infectious cases I have treated that, besides doing everything else in my power, the use of autovaccines were of great assistance and I have had several cases which were very tedious but which rapidly recovered when my treatment was assisted by autovaccines.

ETHER ANESTHESIA.*

WILLIAM C. HUYSER, M.D.
KALAMAZOO, MICH.

In presenting this paper before you this evening I have endeavored to choose a subject not alone practical but with which you are all familiar, attempting at the same time to give it in as interesting a form as possible, and with a view that our different sentiments may result beneficial to all of us. It is not with an idea that I can present anything new, or with which you are unfamiliar, but with the thought that the experience and failures of some may be steps towards success in others.

I think it has been well said by one of our modern investigators of anesthesia: "that the whole subject of anesthesia is still in its infancy. There is no better illustration of this than the fact that there are nearly a thousand substances each of which contains some anesthetic property. We are thoroughly acquainted with the merits and demerits of only about a dozen anesthetics. Reference need only be made to notices that appear in the papers from time to time of artisans, workmen, and others in certain trades being overcome and falling asleep at their work, and the necessity of artificial respiration to revive them. Only recently hedonal and paraldehyde have come into prominence as systemic anesthetics either alone or in combination with ether when used intravenously."

As in the choice thus also in the administration of the anesthetic used we find the widest diversity of opinion among prominent surgeons and anesthetists as to the safest and least annoying to the patient. The amount of anesthetic necessary to produce complete relaxation, or surgical anesthesia, in the various methods is subject to considerable variation, but the actual amount necessary to be absorbed into the system to produce the degree of anesthetization is however quite constant. This is clearly shown in the case of ether whether given by inhalation, intravenous, or per rectum.

The amount of ether not absorbed must be taken into consideration especially when given by the inhalation method. As high as one-fourth of a pound may sometimes be practically wasted in allowing a highly nervous patient to become accustomed to the fumes, while after once asleep but one-eighth of a pound may be all that is required to maintain surgical anesthesia for an hour. This is entirely eliminated in either the intravenous or per rectum methods. A certain amount, judging by the age, weight, habits, etc., of the patient, is taken, mixed either with normal saline solution or olive oil and injected into the vein or rectum as the case may be. Of course these methods have scarcely left

the hands of their original investigators and what the future has for them is practically unknown.

The effect of ether in a majority of the cases, regardless of the method by which it may be given is practically the same except that in inhalation anesthesia the different stages may be more easily noted. In short we have drowsiness, excitement, unconsciousness, and finally total relaxation with respiratory or cardiac failure. In order to emphasize each condition I have chosen to follow an anesthetic given by the drop method and divide the various states into stages.

STAGE OF CONSCIOUS INHALATION.

It must be remembered that for many patients the taking of an anesthetic is an ordeal. For days, weeks, and sometimes months, except in emergency cases, this has been uppermost in their minds as the part of the operation they must consciously submit to. To be rushed from their room on a cart, to an elevator, up three or four stories, down halls, through vacant rooms, and finally strapped to a hard steel table, along side of which is an array of glistening instruments, the names and uses of which would often tax the capacity of a most capable surgeon, is I think not very conducive to that quiet and peaceful state associated in the patient's mind with sleep. This fear often manifests itself in the patient insisting on the assurance of the anesthetist that nothing will be done until they are asleep. A separate room away from the operating room in which the anesthetic can be administered is essential for its successful administration. The room need not be large, ten by fifteen feet with high ceiling and one window would answer the purpose very well. The floor is best covered with rubber matting to prevent all unavoidable noises. The walls and ceiling should be tinted with soft colors and a picture or two on the wall would add greatly to give an atmosphere of serenity. The room should contain a small table on which is a modified Esmarch inhaler covered with two layers of stockinett, two towels, three small gauze sponges, a paper of safety pins, a jar of vaseline, a sealed can of ether, and should contain, most important of all, a competent and skillful nurse. I think that a skillful nurse can do more, whether the patient be five or fifty years old, to allay fear and gain the co-operation of the patient than the best one of our medicinal hypnotics. I imagine, however, that the greatest obstacle in the use of the anesthetic room, is the lack of confidence on the part of the surgeon in the anesthetist, and the greater confidence of the patient in the surgeon.

During this stage of conscious inhalation the ether is dropped from the can on the mask held about four inches from the patient's face and

*Read before the Clinical Society of Kalamazoo, Thursday evening, February 26, 1914.

it should be the effort of the anesthetist to give the maximal concentration that can be tolerated without distress. The patient should be instructed to breathe naturally through his nose and his attention should be diverted as much as possible by a slow conversation on some other subject. In children having them repeat numbers after you have been very successful, the numbers not following in sequence but varying in denomination. Occasionally informing the patient ahead of time to inform you of any discomfort will early get you their confidence and co-operation. The mask is now gradually lowered until it rests on the patient's face, and we pass to the second stage.

STAGE OF TOLERANCE.

The patient has now lost any objections to the odor of the ether but is still conscious and highly perceptive of anything that is said or done about him. It is in the latter part of this stage, at what might be called a subconscious, that occasionally peculiar sensations are said to be felt and noises to be heard. I remember one case in particular that caused quite a sensation when the patient on awakening informed her relatives and the surgeon that while going to sleep she heard the anesthetist say that he (the surgeon) was entirely incompetent to perform the operation she was to have. Thus also sexual sensations in women have led to accusations and legal redress. As in the first stage the maximal amount of ether should be given. A towel is now wrapped around the mask and the patient's jaw supported by the third finger of the left hand while the second finger of the same hand can constantly be placed on the facial artery, and its condition always noted. As the breathing becomes deeper the head is turned to one side as they breathe better in that position.

STAGE OF EXCITEMENT.

Any attempts at vomiting can usually be controlled by holding the jaw firmly and well forward. This stage is characterized by involuntary movements and often by noisy incoherent speech. Do not restrain a patient in this stage as it simply adds insult to injury and does no good. The movements are involuntary spasms and are never directed. Occasionally guarding the extremities from interfering with the administration of the anesthetic or the patient from falling off the table is usually all that is necessary. One caution is necessary in this stage, give plenty of air and do not crowd the anesthetic. Practically the same rapidity of drop is all that is necessary. Many of our expert anesthetists claim that this stage is superfluous and only results from poor administration of the anesthetic. I do not doubt but this is in a large measure true. A constant intake

of ether and an occasional whiff of air will eliminate this stage markedly and entirely in a majority of the cases.

STAGE OF LIGHT ANESTHESIA.

This stage quickly follows the previous stage and is noted by quiet deep breathing, abolition of movements of the voluntary muscles, and loss of reflexes. A majority of the operations can be conveniently performed under light anesthesia. It is only where deep exposure is required that deep relaxation is necessary and the next stage or surgical anesthesia sought. Skill of administration in this stage consists in your ability to keep near the border line and still prevent retching or vomiting which will disturb the surgeon in the progress of the operation. A few signs may here be mentioned indicative of the patient's "coming out" of the anesthetic:

- a. Return of the conjunctival reflex.
- b. Return of the pharyngeal reflex.
- c. Dilatation of the pupil under painful stimuli.
- d. Return of the lid closure.
- e. Deep sighing inspiration of nausea and vomiting.

You will note that a majority of these signs are found in the eye. Although I do not consider it justifiable to too frequently test the eye reflexes for fear of introducing foreign substances into the conjunctival sac, still when the case demands it I think it is usually permissible. Usually, however, the breathing and pharyngeal reflexes will quite exactly give you the condition of your patient.

STAGE OF SURGICAL ANESTHESIA.

Total relaxation is characteristic of this stage. It is here that great caution should be employed as it is the border line stage to the next or dangerous stage. After once under surgical anesthesia, by excluding oxygen, very little ether may be required to maintain it. It is true that a very efficient degree of anesthesia can be maintained in this way, but it is to be remembered that this is the greatest danger to the life of the patient in the administration of an open drop-ether anesthetic. Never hold a mask, on which you are not dropping ether, over the face of a patient. Ether itself contains enough oxygen to sustain life but holding a mask which contains no ether over a patient's face is producing nothing less than what might be called unconsciousness from suffocation. In this stage the following conditions should be noted:

- a. Color of the skin, (which should be bright red.)
- b. Respiratory movements, (which should be regular and not labored.)
- c. Respiratory air current, (which should be unobstructed.)
- d. Ether.
- e. Circulation.

STAGE OF DANGER.

This stage is brought about either by too much ether or not enough oxygen. Physiologically ether first stimulates and then depresses the cerebrum, spinal cord, and medulla in the order named, and this stage indicates the beginning action on the vital centers. Briefly we find the following signs:

1. Absence of the conjunctival reflex.
2. Dilatation of the pupils.
3. Irregularity and enfeeblement of respiration.
4. Heavy snoring.
5. Reversed action of the diaphragm.
6. Increased rapidity and enfeeblement of the pulse.
7. Palor or cyanosis.

STAGE OF RESPIRATORY FAILURE.

STAGE OF CARDIAC FAILURE.

These two stages are best considered together as they merely indicate that the respiratory and cardiac centers have been inhibited by the action of the drug. In distinction to chloroform, respiratory failure occurs first, followed sooner or later by cardiac failure when the ether is continued. It marks the final stage when ether narcosis is continued until death is produced by the effect of the absorption of a fatal dose.

ACCIDENTS OF ANESTHESIA.

Chief among the accidents that may occur during an anesthesia are those relating to respiration and will be noted as:

- I. Respiratory obstruction,
Characterized by,
 - a. Cyanosis.
 - b. Cessation of the air current.
 Treatment,
 - a. Open the mouth.
 - b. Pull the tongue forward.
 - c. Clean out the pharynx.
 - d. Invert the patient.
 - e. Tracheotomy.
- II. Respiratory paralysis,
Characterized by,
 - a. Cyanosis.
 - b. Absence of breathing.
 Treatment,
Artificial respiration.

Of drugs, strychnine 1/30 grain to 1/15 and atropine 1/20 to 1/60 grain are the most useful. Caffeine and camphor are highly recommended but I have never used them or seen them used.

PRELIMINARY MEDICATION.

I believe that preliminary medication is justifiable in selected cases only and should not be used as a routine. In operations where considerable handling of the viscera is unavoidable, or in goitre where the toxic effect on the heart is marked, a preliminary dose of morphine, one-fourth grain and atropine 1/120 grain, these being the chief drugs used, as justifiable. Briefly the action of atropine may be summed up as:

1. Descending stimulant of the central nervous system followed by depression.
2. Paralysis of the nerve endings of,
 - a. Vagus.
 - b. Secretory nerves.
 - c. Nerves to the involuntary muscles except of the vascular.
3. Depression of the sensory nerve endings on local application acting on the motor, in contradistinction to cocaine which acts on the psychical impulses.
4. It is the purest stimulant of the medulla increasing the heart rate to about one hundred twenty beats per minute by its prohibiting action on the vagus.

Hyoscine has a depressing action on the central nervous system and its action is about five times stronger than that of atropine.

POST-OPERATIVE COMPLICATIONS.

The post-operative dangers of anesthetics in general are due to their irritant, depressing or degenerating effects. Ether is an irritant and may be said to invite kidney inflammation. Whether the direct effect of ether vapor acts as an irritant upon the lung tissue as to excite inflammation is, I think, not borne out by the majority of observers. In so-called ether pneumonia three conditions come into consideration, namely:

1. The aspiration of vomitus or secretions from the throat.
2. Chilling of the patient.
3. Excessive exposure.

We also know that passive congestion of the lungs occurs following operations in the upper abdomen where on account of a partial paralysis of the diaphragm and tenderness the breathing has been mostly supracostal.

CONCLUSIONS.

The comparative safety of ether and chloroform is as five to one.

A few complimentary remarks from the surgeon at the completion of an operation relative to the efficiency of the anesthetic is a poor criterion as to your ability as an anesthetist. If you wish to become efficient in the administration of ether you should consult the patient sometime after the operation and receive from him your status. If he complains of the odor and stuffiness of the ether, you have given it too rapidly in the stage of conscious inhalation; if he complains of the awful choking sensation on "going under," you have pushed the anesthetic too fast in the latter part of the stage of tolerance; and if he says he was very sick and vomited for hours upon awakening you have given a toxic dose of ether and the system has called upon the stomach to aid in the elimination.

Undoubtedly the safety of the patient has been the chief object in view in this wild rush for new anesthetics and methods of administra-

tion but it is to be remembered that the margin of safety has been reduced in all. The amount of ether absorbed by the inhalation method is dependent upon the degree of saturation of the residual air in the lungs which comprises about one hundred cubic inches. The residual air by diffusion with the reserve air, which comprises about one hundred cubic inches, and the reserve air by the diffusion with the tidal air which comprises about twenty cubic inches. By a forced respiratory action in the early stages of an anesthesia, thereby changing suddenly the saturation of the residual air, the effects on the patient are at once noticed. Thus you will notice that the absorption is from the diffusion of two hundred cubic inches of air by twenty cubic inches of tidal air which in itself due to the composition of the ether contains enough oxygen to support vital function. Any factor which tends to increase the pressure of the vapor proportionately increases the degree of saturation and rapidity of absorption and lessens the margin of safety in administration.

"The safety of ether has been the largest factor in its own undoing." Do not become too confident in your own ability to administer it. No two cases are alike. "Do not allow the presence of anyone whom you consider more competent than yourself to deprive you of any of the responsibility entrusted to you." You have your patient between two border-lines, one the surgeon and his work, the other the patient's life. Do not follow the operation, you have no opportunity for this, an occasional glance will inform you as to its progress. Refrain from carrying on a conversation with anyone in the room or allow anyone to distract your attention. The fact that you have successfully administered five hundred or one thousand anesthetics is not proof positive that you will be able to successfully cope with the one at hand. Gain all the information you can by noting the respiration, pulse, color of the face, pupils, etc., of your patient's condition. A dilated pupil alone is a suspicious *symptom*, it may be the first sign of coming out of the *anesthetic* or that your patient is in danger. It must be considered with the other signs. "Do not jeopardize the patient's life through your own carelessness or want of attention. Form your own conclusions in each case from the signs present taken collectively, no one is conclusive in itself."

Ether when given by the drop method is the safest and most ideal way of administration of the present day. Not only the condition of your patient but the additional assurance of a strict regulation of the amount you are giving are factors that lead to increased satisfaction that nothing is being overlooked. A regulated drop can be made to satisfy all the conditions from the comfort of the patient until complete saturation with the drug, to the maintenance of a

uniform stage of complete relaxation under surgical anesthesia. It is also practically impossible in most cases to go beyond the stage of surgical anesthesia with ether not given faster than by drop. In alcoholics and very robust individuals an exception will have to be taken as they usually require more ether. Local anesthesia when given by the method advocated by Crile is of great benefit in preventing shock and also reducing the amount of ether necessary. when used in conjunction with ether given by the open drop method, I think we have the most ideal anesthetic of the present time.

Finally, remember that every administration of an anesthetic is an experiment, and that transgressing any of the rules laid down as the narrow path of the anesthetist may cost the life of a patient.

INTRAVENOUS ANESTHESIA.*

C. L. CANDLER, M.D.

DETROIT, MICH.

General anesthesia by the intravenous method is not a twentieth century discovery. While not as old as inhalation anesthesia, it is said to have been employed by Ore as early as 1872. Ore used chloral hydrate as the hypnotic agent in 51 cases, with considerable success. A number of fatalities discouraged its employment until taken up by Burckhardt in 1909. Five years ago this investigator attempted anesthesia intravenously on the human subject, after prolonged experimentation on the lower animals. Chloroform was first used, but soon abandoned for ether, which was considered much the safer drug. One year later six surgeons at the Berlin Surgical Congress corroborated the work of Burckhardt. The intravenous method was first employed in America in the fall of 1912 by Honan, of the Metropolitan Hospital, New York. In February, 1913, Honan reported seventy-eight cases. Since this time the intravenous method has been employed in over 300 cases at the Metropolitan Hospital and elsewhere. Federoff collected 530 cases from three Russian clinics, in which (Hedonol) 75 per cent. in normal saline was used, in which cases there were no deaths which could be ascribed to the anesthetic. Kummell in his contribution to Keen's surgery states that his experience with intravenous ether anesthesia has been so very favorable that he looked upon its general employment as a consummation devoutly to be wished.

While even its warmest advocates do not anticipate the time when the intravenous method of administering general anesthetics will entirely supersede the inhalation method, there are special indications for its adoption. Among these are operations

1. Gwathney. New York Medical Journal.
Recent literature has been freely consulted in the preparation of this article.

*Read before the members of the Wayne County Medical Society, March 30, 1914.

on the head and face in general, operations in the mouth or pharynx, operations on the upper jaw, and tumors of the hypophysis. The advantages of the intravenous method in such cases as these are obvious, affording, as they do, an uninterrupted anesthesia, with the surgeon unhampered by the operations of the anesthetic. The prompt introduction of normal saline in operations attended by severe hemorrhage is frequently an advantage, not to be under-estimated. Intravenous anesthesia has been found to work satisfactorily with patients who have become emaciated from chronic disease. The rule is to find in such patients the pulse better after the operation than before. Recovery from the anesthetic is prompt and void of nausea, which in itself is an obvious advantage, especially in serious laparotomies. Delayed effects of anesthetics after narcosis and after the patient has recovered from the shock are, Honan and Hassler maintain, worthy of more serious study than has hitherto been accorded them. Chloroform administration, for example, is sometimes followed by acute yellow atrophy of the liver, injuries to the heart muscles, or the development of an acidosis. All this is obviated in the administration of ether intravenously.

Further in the old inhalation method it is necessary to have a saturation of the entire respiratory tract with the anesthetic agent before anesthesia can be produced. This fact accounts for the stage of excitement, the irritation of the respiratory mucosa with the greatly increased amount of secretion, and the large quantity of anesthetic stored up in the tissues.

In intravenous anesthesia all this is changed. Our direct route into the blood stream eliminates the respiratory tract, the stage of excitement, nausea and vomiting, post operative anesthesia, and pneumonia.

VARIETIES OF INTRAVENOUS ANESTHETICS.

1. Hedonal (Methylpropyl carbinol urethane) is a white powder soluble in alcohol, ether and water. Hedonal .75 per cent. in normal saline produces a wonderfully smooth anesthesia resembling natural sleep and lowers blood pressure. The objection to its use is the fact that a large number of red blood corpuscles undergo hemolysis.

2. Paraldehyde 2.5 per cent with ether 3 per cent. in normal saline also gives a smooth and rapid anesthesia but, increases blood pressure beyond the limits of safety.

3. Isopral and ether 7 per cent. in normal saline has proved to be the most satisfactory combination. Isopral (Trichlorisopropyl Alcohol) is a white crystalline substance closely related to chloral hydrate and lowers blood pressure. I use the Isopral and ether 7 per cent. in normal saline.

TECHNIC.

I employ a modification of Honan's apparatus consisting of two glass cylinders, one within the other. The outlet is controlled by a two-way stop cock. The anesthetic is administered as follows: I

cut down on the median basilic vein of either arm, according to the convenience of the surgeon, a canula is then inserted into the vein and the solution permitted to flow drop by drop. The solution of Isopral is permitted to flow into the circulation first, to be followed by the solution of ether. The patient goes under the anesthetic quietly without the stage of excitement. The return to consciousness is almost as rapid, occurring practically when the anesthetic is stopped. The reflexes are observed to be practically the same as by the inhalation method.

The danger ascribed to the intravenous method of administering general anesthesia are embolism



Apparatus employed.

and dilatation of the heart. This, to me, has been over-estimated and appears to be an objection more of a theoretic than of a practical nature. In my opinion there is no more danger in administering an anesthetic intravenously than in giving a solution of salvarsan or normal saline. Furthermore, the percentage of ether is fixed at the beginning of the anesthetic, and does not depend upon the anesthetist. In our three hundred cases at the Metropolitan Hospital there did not occur a single fatality.

We have already pointed out the advantages of the intravenous method in cases of operations about the head. It will be found advantageous in intestinal obstruction, in operations for ectopic pregnancy, in amputations, or in any cases of extreme shock.

To quote Kummell, "In the light of our experience

intravenous ether anesthesia is a method which, providing the indications are properly observed, is superior to any other form of anesthesia. For many cases it is to be regarded as an absolutely ideal method, because aside from the fact that a small quantity of the anesthetic is employed, it has a distinctly stimulating action which cannot be said of any other known method up to the present time."

The first time this method was employed in Detroit was at Harper Hospital, January 10th, 1914. The patient, a case of cystic goitre, was operated on by Dr. Clark D. Brooks. The anesthetic record was as follows:

	A. M.
Anesthetic began	9:20
Anesthetic stopped	9:57
Anesthetic time	37 minutes
Operation began	9:23
Operation completed	9:57
Operation time	35 minutes
Blood pressure before	160
Blood pressure after	150
Quantity of ether used	31
600 c.c. of 7 per cent. ether in normal saline.	

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1. Honan and Hassler, *Medical Record*, February 8, 1913.
2. Burckhardt, Muenchener, *Medizinische Wochenschrift*, November 16, 1909.
3. Kummel, *Keen's Surgery*, Vol. VI.
4. Federoff, *Presse Medicale*, May 10, 1911.
401 Fine Arts Bldg.

PROPOGANDA FOR REFORM.

Theobromin Sodium Salicylate Versus "Diuretin."—Theobromin sodium salicylate, now described in New and Nonofficial Remedies and sold by most pharmaceutical firms, was first introduced under the therapeutically suggestive name "Diuretin." While under its proper title it can be bought for 35 to 45 cents an ounce, the proprietary "Diuretin" costs \$1.75 an ounce. An examination in the A.M.A. Chemical Laboratory has demonstrated that the quality of the product as sold under its chemical name is equal to that sold as "Diuretin." In view of these findings physicians should learn to prescribe the drug by its chemical name (*Jour. A.M.A.*, April 4, 1914, p. 1108).

Tonsiline.—Newspaper advertisements assert that Tonsiline is "A quick, safe, soothing, healing antiseptic cure for sore throat." From an analysis made in the A.M.A. Chemical Laboratory it appears that a preparation like Tonsiline will be obtained by mixing one ounce of tincture of ferric chlorid, one ounce alcohol, 280 grains potassium chlorate with sufficient water to make one pint. It contains drugs whose use for the purposes for which Tonsiline is used are being abandoned. The objection to the indiscriminate use of Tonsiline, which represents a saturated solution of potassium chlorate, is evident (*Jour. A.M.A.*, April 4, 1914, p. 1109).

Gomenol.—Gomenol is a volatile oil, which comes as a proprietary from France. The oil appears to be prepared from a plant closely related to that which yields oil of cajuput and the properties and therapeutic value of the two oils probably are about the same. Gomenol is sold under most extravagant claims (*Jour. A.M.A.*, April 4, 1914, p. 1110).

The Value of Mineral Waters.—The unprejudiced physician who is seeking to avail himself of the best therapeutic aids which modern medical science affords, cannot help being baffled by the conflicting claims made by the crude balneotherapy of to-day. He sees numerous cases in which relief has unquestionably been obtained by patients who have visited one of the many springs in this country or Europe; but when he attempts to analyze the possibilities—including rest, change of diet and environment—and to determine some standard by which he may intelligently advise those who need his help, the result is a hopeless confusion of ridiculous claims. At present mineral water therapy is a hopeless confusion (*Jour. A.M.A.*, April 4, 1914, p. 1097).

The Serum Treatment of Tetanus.—The great value of antitetanus serum as a preventive is unquestioned. As a specific cure the serum has fallen short of expectation; nevertheless, it has decreased the mortality from tetanus. Tetanus antitoxin acts only on the toxin not yet combined with the nerve cells. This emphasizes the early and liberal use of antitoxin serum largely by intraspinal introduction in order to neutralize the toxin that still is free and on its way to the nerve-cells, the necessity of thorough cleansing of the wound to remove all source of continued intoxication, and of conserving the strength of the patient in the hope that the morbid process caused by the toxin already in the nerve-cells may be overcome (*Jour. A.M.A.*, April 11, 1914, p. 1174).

Salvarsan Therapy.—Wechselmann holds that the cases of salvarsan fatalities from encephalitis hemorrhagica were due to uremia, resulting from the irritation of the kidneys, in most cases damaged by administration of mercury. On the basis of this theory he argues for a pure salvarsan therapy in place of the generally combined mercury and arsenic treatment. He warns that salvarsan should be administered only after due consideration of the dose indicated and of the determination of absence of contraindications. No one can dispute that nearly all the deaths from salvarsan have been caused by its indiscriminate use, either in the face of contraindications or too large or too frequent dosage (*Jour. A.M.A.*, April 11, 1914, p. 1175).

Wine of Cardui.—Wine of Cardui has vogue among women who prefer to take their booze in the form of "patent medicines." It is sold by the Chattanooga Medicine Company. John A. Patten, reputed to the chief owner, is prominent in the Methodist Episcopal Church organization. Wine of Cardui is advertised as a cure for all manners of female diseases and though containing 20 per cent. of alcohol, women and girls are advised to use it indiscriminately. Examination in the A.M.A. Chemical Laboratory makes it probable that Wine of Cardui is a hydro-alcoholic extract of blessed thistle, containing a trace of valerian and that its medicinal properties are due principally to its alcohol content, 20.36 per cent. absolute alcohol by volume having been found (*Jour. A.M.A.*, April 11, 1914, p. 1186).

TRANSACTIONS

OF THE

Clinical Society of the University of Michigan

Stated Meeting, April 15, 1914

The President, R. BISHOP CANFIELD, M.D., in the Chair

Reported by REUBEN PETERSON, M.D., Secretary

(1) A CASE OF NON-GRAVID HYDRORRHEA DUE TO HYSTERIA.

(2) A CASE OF ABDOMINAL CESAREAN SECTION FOR CONTRACTED PELVIS IN A CHILD OF TWELVE.

(3) A CASE OF ABDOMINAL CESAREAN SECTION AT THE SEVENTH MONTH FOR THREATENED ECLAMPSIA.

REUBEN PETERSON, M.D.

(From the Obstetric and Gynecologic Clinic, University Hospital, Ann Arbor, Michigan).

CASE 1. A CASE OF NON-GRAVID HYDRORRHEA DUE TO HYSTERIA.

Mrs. E. W., gynecologic number 5260, married, age 25, referred by Dr. C. Peabody, Lake Odessa, Michigan, entered the Obstetric and Gynecologic Clinic of the University Hospital September 29, 1913.

History.—The family history is negative. Her health was excellent up to the time of her marriage at the age of 19. She says she had meningitis three years ago and was very sick for six weeks but made a good recovery. She gives no history of luetic or Neisser infection. Menstruation was established at the age of fourteen and has always been regular and painless.

She has one child six years old. Her pregnancy was uneventful except for slight hemorrhage and the leaking of the waters at the sixth month. However, she carried the child to full term and was delivered by instruments after a labor extending over two days. She was quite badly lacerated, but was not repaired. She was in bed three weeks and was not well for three months. About a year ago she aborted at the fifth week from some unknown cause. She was curetted and made a good recovery.

She comes to the Hospital for headache, pain in the lower abdomen and across the back. These symptoms have been present since her childbirth six years ago and have been much worse

since she had a second attack of measles in the spring of 1913.

The pain in the abdomen is dull in character and worse when she is lying down. For the past few months she has suffered from a leucorrheal discharge, which at times requires the wearing of a napkin but has never had a foul odor nor has been blood streaked.

Since July 1913, the abdomen has seemed to swell just before the period. This enlargement subsides after she has flowed two days. This is followed by a discharge from the vagina of a large amount, at times as much as two quarts, of watery, slightly bloody fluid. Ten days ago shreds of tissue or membrane came away after the flow. With the last few periods she has had some nausea and vomiting. She does not consider herself very nervous. Since last spring she has lost ten pounds in weight.

Examination.—An examination made the day of entrance showed the abdomen to be negative except for tenderness in the left lower quadrant. Percussion gave tympany throughout. The perineum was lacerated and there was a cystocele and rectocele on straining. The uterus was completely retroverted and there was a bilateral laceration of the cervix. The appendages could not be outlined on account of tenderness.

On October 3, 1913, the uterus was dilated and curetted and the cervix and perineum repaired. The abdomen was then opened and the appendages found normal. The uterus was held forward by a modified Simpson shortening of the round ligaments.

The pathologic examination showed marked glandular hyperplasia of the cervix with decidedly cystic glands with a glandular erosion. The endometrium showed glandular hyperplasia of the non-resolution type.

The patient made a good recovery, her abdominal wound healing by primary union. There was at times considerable abdominal dis-

tension which was thought to be due to gas. She was discharged from the Hospital October 21, 1913.

It is of interest to note that her physician in the letter accompanying the patient to the Hospital speaks of the accumulation and discharge by the vagina of large amounts of serum which he thought came from a tubal infection dating back to the time of her abortion. While the fluid was accumulating there was severe abdominal, cramping pain which ceased after the discharge of the fluid by way of the vagina.

Six days after leaving the Hospital the patient wrote that she was suffering from considerable abdominal pain and distension.

November 1, she wrote that the distension suddenly went down leaving her with much pain across the lower abdomen. The pain lasted three or four days and was relieved by the discharge of about a pint of clear fluid from the vagina. She remarks that this is what she had before the operation and asks if something cannot be done for her relief.

Up to this time the case had not seemed out of the ordinary since it was not uncommon for women before and after abdominal operations to complain of distension and transitory pains. The history of profuse vaginal discharges also is not uncommon. Investigation usually reveals the cause of the discharge or shows that its importance, amount and character have been overestimated by the patient.

However, there was a distinctly different element in this case. The patient undoubtedly passed considerable quantities of watery fluid from the vagina or bladder, the discharge being preceded by abdominal distension and cramping pains. A sample of this fluid was sent to the Hospital by her physician and examined in the medical laboratory. It was slightly turbid with a high specific gravity and contained a considerable amount of albumin and nucleo-albumin. It contained neither mucin, paramucin, sugar nor blood. The microscopic examination was negative owing to contamination by boric acid placed in the fluid for preservative purposes. The report closes with the following:

"We have no suggestion to offer as to what this fluid might be. It certainly is not from a cyst and we are certain it is not urine because it contains only three grams of urea per liter and this could easily come from the albumin present in the fluid."

A second specimen was examined in the medical laboratory December 21, 1913, with the following report:

"We wish to report the fluid that come from Mrs. W. It is a greyish opalescent fluid with a flocculent greyish white sediment. Specific gravity of the fluid is 1002, acid reaction, it requiring 4 cubic centimeters of tenth normal NaOH to neutralize 100 cubic centimeters of fluid. It

coagulates upon boiling and does not reduce Fehling's solution, does not precipitate with acetic acid in cold (mucin). Urea .91 grams per liter. The examination of the sediment shows that it is composed almost entirely of bacteria of which by far the greater number are bacilli. There are present a few acid fast bacilli, which, however, decolorize with alcohol, making it likely that they are smegma bacilli.

Dr. Hewlett is of the opinion that this is not urine.

The following letter from the patient dated December 7, 1913, is interesting: "You asked me to write if that fluid gathered in my abdomen again. It began to gather last Tuesday and part of the fluid came away Friday afternoon. There was about three ounces, half of which Dr. Peabody sent you. I began having pain Friday morning and by afternoon it was so severe I called the doctor. He gave me two 'hypos' before I felt any relief, but as soon as the effect of them wore away the pain was as bad as ever, until Saturday a pint more of the fluid came. Then I felt relieved and could sleep. Before the first fluid came I was filled so high I could hardly breathe. This is the second time it has gathered between periods. It seems to require so much more hard pain before it will discharge than at the periods. There seems to be some swelling in the left side of the abdomen over the left hip bone and across the back. Trusting you may find the cause of the trouble, I remain etc."

Surely a well written and intelligent letter from a woman with a condition which is giving rise at irregular intervals to considerable suffering.

During December the patient grew worse, the attacks becoming more frequent and the pain more severe. The physicians in attendance thought they could detect bulging in the posterior culdesac. As the patient was becoming more and more prostrated by the attacks and seemed to be failing fast, it was deemed best to send her back to the Hospital which she reentered December 26, 1913.

The patient was examined soon after entrance, at which time she was having some abdominal pain. The night before there had been severe pain in the left side and leg. The patient's abdomen was greatly distended and tympanitic throughout. Toward night the pain had become very severe. There were paroxysmal attacks of abdominal pain closely resembling the pains of labor. The patient emptied the bladder every twenty minutes to one half hour. The urine was clear, contained a large amount of epithelium and a considerable number of white cells. The specific gravity was 1003. During the attack she became nauseated and vomited a small amount of mucus. The pain became so severe as to prevent the patient from lying down.

She would walk back and forth, occasionally bending over with the pain. In six hours' time she passed thirty-eight ounces of urine. Between seven and eight in the evening she felt something give way inside of her and a moderate amount of fluid came away from below. The patient was immediately relieved and the abdominal distension subsided. At nine o'clock a second small amount of fluid came away and one half hour later the patient was very comfortable, although she had some pain in the left side and leg. Examination on day of entrance was practically negative with the exception of some abdominal tenderness and sensitiveness in the region of the appendages. The latter were not enlarged nor adherent.

From December 26, 1913, to January 16, 1914, the date of the second operation, the patient had frequent attacks similar to those described above. Always the attacks would begin with abdominal distension and paroxysmal pains. Then would come the feeling as of something breaking or giving away. This would be followed by a discharge of fluid from below, whether from the vagina or urethra the patient was unable to say. Then would follow subsidence of the abdominal distension and relief of the paroxysmal pains.

December 30, 1913, at the beginning of one of these attacks in order to determine definitely whether the fluid came from the vagina or urethra, the vagina was packed with dry colorless gauze and a solution of methylene blue injected into the bladder. When the "break" came the night dress was found to be wet with a clear fluid and urine immediately afterward was colored with the methylene blue. The gauze removed from the vagina was without color, though soaked by a clear fluid. This fluid was sufficient in amount to wet the glove, but not enough for examination.

During another attack the cervix was examined through a speculum and fluid was seen coming from the external os.

In order to eliminate still further the urinary tract as the cause of her attacks the patient was referred to the Genito-Urinary and X-Ray departments. A skiagraph taken after catheterization of the ureters and injection of the urinary tract with collargol showed the pelvis of the kidneys and the ureters perfectly normal.

January 16, the uterus was again dilated and curetted, very little tissue coming away. Although bimanual examination showed no abnormality of the appendages it was deemed best to explore the pelvis a second time. This was done through an anterior colpotomy incision. Thorough palpation of both tubes and ovaries showed them to be perfectly normal.

The pathologist reported that aside from slight interstitial changes of recent regeneration the endometrium was practically negative and

that there was nothing to explain the origin of the fluid.

When the patient came out of the anesthetic she was told that the cause of her trouble had been discovered and that she would not have any further discharges of fluid. From the date of the operation to her discharge from the Hospital twelve days later there were no further attacks.

I have heard from the patient and her physician within the past week. The patient has been absolutely free from the attacks of hydrorrhea since her discharge from the Hospital three months ago.

It seems to me as if we were justified in making a diagnosis of hydrorrhea of hysterical origin by the method of exclusion.

It was proved by examination that the fluid came from the cervix and not from the urinary tract. The pelvis, as shown by two explorations, was free from cysts or fluid collections in or about the tubes. The history of the case subsequent to the second operation also bears out the diagnosis, since through suggestion the attacks ceased.

Hydrorrhea is occasionally observed in the pregnant woman and is due to the hyperplasia of the glandular structures of the decidua. There is a profuse secretion of clear fluid which is continuously discharged or may be retained within the uterus and suddenly discharged in large quantities. Hydrorrhea in the non-puerperal woman is certainly a rare and obscure condition. The microscopic picture of the endometrium in the present case while showing glandular hyperplasia seemed to throw very little light on the source of the fluid which undoubtedly came from the uterus.

In the Surgeon General's Catalogue there are five references to the condition, to three of which I have had access in the university library.

J. Oliver in the *British Medical Journal*, 1884, says that patients suffering from non-gravid hydrorrhea are usually of a nervous temperament. The quantity of the fluid varies, as much as six ounces being discharged at one gush with repetition at intervals of four to six hours. The circumstances attending the watery discharge are variable. In some cases there is pain in the hypogastric region frequently followed by a bearing down pain. The discharge may come from the Fallopian tubes, although more likely to arise from the uterus. The changes in this organ may be compared with those occurring in the kidneys during the secretion of the so-called hysterical urine. The condition is most probably dependent upon some derangement of innervation either of the vasomotor system or directly through the nerves which preside over secretion. Oliver is inclined to the latter hypothesis.

H. J. Garrigues reports a case of non-gravid hydrorrhea in the *Medical Record*, 1886. The patient was twenty-nine years old and the mother of two children. She was exceedingly nervous and suffered from nausea. The first attack of hydrorrhea in March, 1883, lasted three days. The second began in April and lasted six months and then ceased for three months. Subsequently it appeared only after menstruation which occurred every three weeks and lasted three days. For two months the patient did not menstruate but in its place was a watery discharge which lasted three days, the patient soaking as many as forty napkins a day. During the attacks the uterus was enlarged and tender. The tubes were not enlarged and there was no pelvic tumor. The elements found in the fluid were purely uterine in character. The condition was evidently due to endometritis and the patient was cured by treating this condition.

W. J. Mackie also reports a case of non-gravid hydrorrhea in the *British Medical Journal*, 1884. The attack followed an abortion associated with persistent hemorrhage for which ergot was administered. The hemorrhage ceased and was succeeded by the discharge of a colorless fluid. Later there were occasional gushes of clear fluid associated with nervous phenomena. There were also attacks of severe gastralgia followed by collapse. The pain was relieved by an escape of fluid from the vagina when the patient was placed in a hot bath. There were symptoms of angina pectoris accompanied by general abdominal distension. These symptoms were most frequently relieved by a gush of fluid from the vagina. The exciting causes of her attacks were over-exertion, cold, mental worry, sudden shock, anger, fatigue, et cetera. The attacks continued for some years becoming less frequent as she became stronger. There was no enlargement of the uterus at the time of the abdominal distension and the hydrorrhea was never accompanied by expulsive pains. There was an apparent vicarious relationship between the hydrorrhea and the secretion of hysterical urine. After the patient's health improved the abdominal enlargement subsided gradually. The author thinks the chief etiologic factor in the case was the marked neurotic condition of the patient.

In the present case we have a patient who becomes subject to attacks of abdominal distension and cramping pains relieved by the escape of considerable quantities of fluid from the vagina. The attacks ceased after the uterus was dilated and curetted. However, they began again after her return home before the endometrium had had a chance to regenerate. The attacks ceased again after the second curettage and determination by exploration a second time that the pelvis was normal.

The abdominal pains undoubtedly were real

and were due to the accumulation of fluid within the uterus, since they were relieved by the discharge of fluid by the vagina. The cessation of the attacks through suggestion would lead one to think that the attacks probably were due to a neurosis. This seems more probable when we consider that thousands of women have been shown to have similar microscopic changes in the endometrium yet have not had similar attacks.

CASE 2. A CASE OF ABDOMINAL CESAREAN SECTION FOR GENERALLY CONTRACTED PELVIS IN A CHILD OF TWELVE.

I report this case since it is rather unusual for abdominal Cesarean section to be performed upon so young a patient. She had menstruated but once and this just before conception occurred.

The patient was undeveloped and small for her age, her weight being 91 pounds and her height 4 feet 9 inches. The pelvic measurements were all below normal, the external conjugate being 15.5 centimeters and the conjugate vera between 8 and 9 centimeters.

As far as could be judged the child was of average size and the question naturally arose whether to give the child mother a test of labor or to perform an elective Cesarean section. The latter operation was decided upon on account of the extreme youth of the mother who would be saved the possible shock resulting from a protracted labor. From the standpoint of the child Cesarean section was the operation of choice.

The operation was performed March 31, 1914, ether being administered after the abdomen was prepared. At the request of my assistant, Dr. Seeley, who has been studying the action of pituitrin in the Maternity ward a hypodermatic injection of this drug was administered to the patient about three minutes before the abdominal wall was incised. The uterus was markedly contracted even before it was opened and the child extracted. The latter was cyanotic when removed from the uterus and quite asphyxiated. It was finally resuscitated after ten or fifteen minutes of artificial respiration. So firmly was the uterus contracted that the posterior wall and placental site were turned outward through the uterine incision during the liberation and removal of the placenta. There was less bleeding than usual from the uterine wall.

The child was a healthy male, weighing about six pounds at birth. The patient had an uninterrupted convalescence and was discharged from the Maternity April 21, 1914.

I can not but feel that the wisest course was pursued with this patient. Of course it is possible that she might have had a fairly easy labor and given birth to her six pound child without

temporary or permanent injury to either. But this is looking backwards not forwards. Only approximately can the size of the fetus in utero be determined and while a child weighing six pounds is below the average birth weight, it was a large child for this particular pelvis and I doubt if it could have been delivered alive. Even had this been possible the chances of injury to the child mother would have been considerable. Far better was it for this much abused patient with her undeveloped pelvis to be spared the uncertainties and agonies of labor by submitting to abdominal Cesarean section.

From my experience with pituitrin in this case I would never use it again in connection with Cesarean section prior to the removal of the placenta.

I can see why so many unfavorable reports have been made as to the action of pituitrin. Prior to the completion of the first stage, through its powerful action on the uterus the fetal circulation is interfered with and the fetus may perish in utero before the beginning of the second stage. After the dilatation of the os the same may be true if the drug be administered except just before the birth of the child.

Since Dr. Seeley proposes to lay before the Society the results of his experience with pituitrin, I will not now discuss the subject further except to emphasize what has been shown by the case reported, that the administration of pituitrin may be very dangerous to the child.

CASE 3. A CASE OF ABDOMINAL CESAREAN SECTION AT THE SEVENTH MONTH FOR THREATENED ECLAMPSIA.

Although the indications for abdominal Cesarean section upon good scientific reasons are being extended rapidly, the operation is not often resorted to for threatened eclampsia. For that reason each case should be reported and the indication for the operation fully set forth.

February 4, 1914, I was called by Dr. Cowie to see in consultation Mrs. W., aged twenty-eight, advanced six months in her first pregnancy. During the early months of gestation her urine had been examined regularly and as late as December 30 had been found perfectly normal. January 31, a small amount of albumin was present but no casts. Inquiry brought out the fact that the patient for several days previous had had a food intoxication. At the time of this examination there was some edema of the ankles and upper eyelids. Examination of the urine February 3, showed 5.7 grams of albumin to the liter with numerous hyalin and granular casts in spite of the fact that the patient's diet had been restricted.

Examination at the time of the consultation showed a woman of good build with only slight indications of the intoxication of pregnancy. The patient had no headache, nor dimness of

vision. Her color was good and there was only slight edema of the ankles. The uterus was at the level of the umbilicus and apparently the gestation was normal. The patient laughed at the idea of her being sick and complained bitterly of her restricted diet. At the time of this examination it was learned that the patient had been severely ill with scarlet fever at the age of fourteen. Both she and her mother thought that the kidneys had not been affected by the disease.

Although the patient was kept in bed and on a milk diet, the bowels kept open and the proper diuretics administered, the condition of the patient as shown by her urine and edema steadily grew worse. The amount of albumin increased until the precipitate was solid by the heat and nitric acid tests. The casts increased in variety and number. The patient became markedly edematous and there were evidences of quite a large amount of ascites. The blood pressure rose during the month from 150 to 180.

Since the patient's condition was steadily growing worse in spite of all treatment, evacuation of the uterus had to be considered, if eclampsia was to be avoided. While the patient naturally was very desirous of saving her child, the family insisted that her life had been placed in sufficient jeopardy and that the pregnancy be terminated in such a manner as to give her the best chances.

It seemed to me that even at the seventh month the fetus must be considered in deciding upon the nature of the operation to be performed. While the chances were in favor of the mother's condition acting unfavorably upon the fetus to such an extent as to make it problematic whether such a seven months fetus would survive, there was no way of definitely determining the strength or vitality of the fetus. That it was alive and not in extremis was shown by the regularity and strength of the fetal heart beat. Hence it seemed only fair to choose an operation which, while not lessening the mother's chances, would inflict the minimum trauma and shock upon the fetus.

Abdominal Cesarean section met both indications. It could be quickly performed, necessitating a short anesthesia which would be good for both mother and child. There was no other operation so advantageous as far as the child was concerned and no other more advantageous for the mother.

The operation was performed at my private hospital March 4, 1914. In order to save time everything was made ready for the abdominal incision before the anesthetic was administered. The abdominal incision was made below the umbilicus on account of the small size of the uterus. The abdominal wall was very edematous and there was a large amount of aseptic fluid in the abdominal cavity. This was evacuated.

ed, the uterus incised and the child extracted. It was small and puny but reacted after emersion in hot water. Every effort was made to save its life but to no purpose since death occurred suddenly on the third day.

The mother had an uninterrupted convalescence. The urine gradually cleared up until it was free from albumin and casts and the patient was discharged from the hospital three weeks after the operation.

A question of some importance has been put to me by this patient. Would a second pregnancy mean a recurrence of the trouble which caused the loss of the baby and seriously menaced her own life? I have replied that in all probability it will depend upon the cause of the intoxication. If it were due to the kidney of pregnancy, it does not mean necessarily that she will be threatened with eclampsia in a second pregnancy. If, on the other hand, the renal condition was due to the attack of scarlet fever in all probability the kidneys will be affected by a subsequent pregnancy. Possibly delicate tests of the urine may settle the diagnosis since the kidney of pregnancy completely recovers while this is not necessarily true of the kidney damaged by the scarlet fever poison.

DISCUSSION.

DR. WARD F. SEELEY: In the first case the literature is so very incomplete that there is not much to add. In the second case the extreme youth of the patient is one of the interesting features. Haller reports a patient who menstruated regularly from the age of three years and was delivered of a full term child at the age of nine years. The administration of pituitrin in Cesarean section before the delivery of the child in our opinion is distinctly contraindicated. Its administration, even in normal cases, is frequently associated with asphyxia neonatorum which is probably due to marked constriction of the placental site with a consequent hypercarbonization of the fetal blood.

TWO CASES OF PARAPLEGIA OPERATION FOLLOWED BY IMPROVEMENT.

CARL D. CAMP, M.D.

(From the Clinic of Nervous Diseases, University Hospital, Ann Arbor, Michigan).

CASE 1. A woman, age 57 years, was first admitted to the University Hospital, May 5, 1913, complaining of pain of a neuralgic character in the left arm and some disability in the use of the left arm and hand. The family and previous medical history of the patient contained nothing of importance. The pain began about five months before her admission to the Hospital. Examination at that time showed a marked atrophy of the small muscles of the left hand and some atrophy of the forearm. The patient could only partially flex the fingers but other movements could be performed, though they were weak, especially flexion at the elbow.

There was no weakness nor atrophy in the right arm or in the legs. Tendon reflexes in the upper and lower extremities were normal and there were no sensory changes. The plantar reflexes were normal. The right pupil was larger than the left but both reacted promptly to light and in accommodation. The left pupil did not dilate to sensory stimulation of the neck and under homatropine the right pupil dilated much more feebly than the left. The fundi showed beginning arteriosclerotic changes. The physical examination was negative and there was no deformity of the spine. Examination of the blood and urine was negative. The blood pressure was 160 millimeters Hg. and the Wassermann reaction on the blood was negative. An X-Ray examination of the cervical region showed nothing abnormal. There was no cervical rib.

The condition at first suggested was the lower arm type of brachial plexus palsy but there was no apparent etiology for this, no history of injury, no cervical rib and the pupillary signs which indicated the involvement of the sympathetic fibers showed that the lesion must involve the nerve roots before the rami communicantes were given off, i. e. in the spinal canal. An intraspinal lesion was therefore diagnosed but the patient refused operation and left the Hospital May 19, 1913.

The patient returned to the Hospital July 4, 1913. The disability in the left arm had increased slightly and the atrophy was more pronounced; there was also slight atrophy in the right thenar eminence. The pains were severe and there was difficulty in walking. The pupils were the same as before. The knee jerks were exaggerated on both sides. There was an ankle clonus on the left side. Plantar irritation caused extension of the small toes but no movement of the great toes. The urine examination showed albumin and casts and the blood pressure was 180. There was edema of the feet and ankles and some dyspnea. The patient remained in the Hospital until September receiving treatment chiefly for the nephritis. The difficulty in walking gradually increased. It was considered very probable that there was something, probably a tumor, which was irritating the spinal nerve roots and gradually compressing the spinal cord. An operation was again advised but on account of the nephritis the prognosis was regarded as a little doubtful and the patient left the Hospital to try osteopathy.

She returned, December 11, 1913, for an operation. She was then totally paralyzed in both lower extremities and was unable to sit up. She had been in this condition for about two weeks. She had retention of urine, cystitis and probably pyelonephritis. There was no atrophy nor deformity of the legs. The knee jerks were exaggerated on both sides about

equally. There was ankle clonus and a positive Babinski reflex on both sides. The "defense reflex" was present in both legs. Pain sense was diminished in the legs, while tactile sensibility was relatively preserved. The conditions in the upper extremities were about the same as on her previous admission. The blood examination was negative. The urine showed albumin and casts and the systolic blood pressure was 205-210 millimeters Hg.

An exploratory laminectomy was done by Dr. C. B. G. de Nancrède, December 22, 1913. The spinous processes and lamina of the seventh cervical and first and second dorsal vertebrae were removed. The dura bulged greatly and showed no pulsation. The incision in the dura gave a gush of cerebrospinal fluid, apparently under considerable pressure. The spinal cord seemed small but otherwise normal. The incision in the dura was about one and a half inches long and at about the level of the first dorsal vertebra.

On December 23, her temperature was 100°. She said she felt well and had no pain. The examination gave the same findings as before operation, except that the Babinski reflex was less definite. On the 24th she had no pain. The knee jerks were less exaggerated and plantar irritation caused flexion of the toes. January 30, 1914 she was up in a wheel chair. She complained of pain at the site of the operation wound and down the arms especially if she sat up too long. Her legs were not strong enough to bear her weight but she could move them at all joints and they were gradually getting stronger. The knee jerks were very prompt and there was an ankle clonus on both sides. Sensation to touch and pinpoint seemed to be normal in the legs. The upper extremities were about the same as before the operation. There was no difficulty with micturition. She said that slight voluntary movement was first noticed in the toes about three days after the operation.

April 15, 1914, the patient said that she felt well except for some aching in the arms. An examination showed that the pupils were rather small but they reacted to daylight and also in accommodation. The extraocular movements were normal. There was apparently no reaction of the pupil on either side from stimulation of the neck. There was no enlargement of the thyroid, nor of the postcervical glands. There was a marked atrophy of the small muscles of the left hand, also considerable atrophy of the left forearm but no marked atrophy of the upper arm. There was slight atrophy of the small muscles of the right hand. She had a slight tremor in the finger to nose test, probably on account of the weakness. The grip of the right hand was fair, of the left hand nil. She could extend the fingers of the right hand but could not extend the two middle fingers of the

left hand. She could flex and extend the left wrist but could not approximate the thumb to the fingers of the left hand. She had no trouble in putting both arms above her head. Flexion of the left arm was strong but extension was very weak. Extension of the right arm was also weaker than flexion. The biceps and triceps reflexes were present and prompt on both sides and about equal. She could move the lower extremities at all joints but the movements were weak. The weakness was about the same in all of them; no paralysis in any special groups; no localized atrophy. She was able to stand and could walk with assistance. The knee jerks were very prompt on both sides, perhaps slightly more so on the right than on the left. There was an ankle clonus on the right side, also on the left side. The Achilles reflexes were exaggerated. She said she felt pinpoint very sharply in both feet.

CASE 2. An iron moulder, age 49 years, was admitted to the Hospital, December 30, 1913, complaining of girdle sensation, paraplegia, retention of urine and cystitis. His family and previous medical history contained nothing of importance. His first symptom was noticed about January, 1913, as a hot sensation between the first and second toes of the left foot. He later noticed various paresthesias in the left leg and about two weeks after the paresthesia appeared the right leg became weak, and about two months after that the left leg was also affected and he became unable to continue work. In August, 1913, he was examined by Dr. Safford, of Detroit, who noted that sensation in the legs was not disturbed but that his gait was spastic and he could only walk a few steps. At this time he began having difficulty in emptying his bladder. On his admission to the Hospital he had complete paraplegia with exaggerated reflexes and a positive Babinski reflex. There was a girdle sensation about the abdomen just above the umbilicus. He had complete retention of urine, also some cystitis. Sensation to pain and touch was lost in both legs and up to about the level of the umbilicus. There was no deformity of the spine and nothing abnormal in the head or upper extremities. The physical examination was negative. The blood count was normal. The urine showed albumin and leucocytes but no casts. The Wassermann reaction on the blood and spinal fluid was negative. The spinal fluid was very slightly yellow. There were seven lymphocytes per cubic centimeter. Pandy's reaction was very positive. Nonne Apelt, phase 1, was very positive; and the total amount of albumin was much increased. He was re-examined from day to day and no change noted except that the level of lost sensation seemed to be rising slightly and was near the tip of the xiphoid cartilage on January 14, 1914.

It was deemed advisable to do an exploratory operation to see if any pressure on the spinal cord was present and on January 16, Dr. C. B. G. de Nancrède removed the spinous processes and laminae of the sixth, seventh and eighth dorsal vertebrae. There was no extradural tumor. The dura was opened and the spinal fluid appeared to be under considerable pressure. There was some thickening of the dura and the arachnoid appeared milky. The spinal cord seemed very small, not over three millimeters in diameter. There was no visible pulsation either before or after opening the dura. He was transferred back to the Neurological clinic, February 2, 1914, and said he was feeling well. He had no difficulty in urination and no retention. He had normal sensation in passing urine. He could move the left leg at all joints. He could move the right ankle and the toes of the right foot but not the right knee. The knee jerks and Achilles jerks were very prompt but there was no ankle clonus and plantar irritation caused flexion of the toes on both sides. Sensation was not accurately tested but he claimed to be able to feel touch and pinpoint plainer in the legs than before the operation.

April 12, he was feeling well and had no disturbance in urination, no incontinence nor retention of urine or feces. He had a slight girdle sensation, at times accompanied by jerking in the legs. He said that he could stand by his bed but could not walk. He stated that the retention had disappeared four days after his operation and that he began moving his toes about one month after the operation. His legs were extremely spastic; any attempt at movement increased the spasticity so that movements were practically impossible. He could stand if he steadied himself with his hands. There was no atrophy nor deformity of the legs and the electrical reactions were normal. The knee jerks and Achilles jerks were exaggerated and there was spontaneous ankle and patellar clonus. The plantar reflex was present. The cremasteric reflexes were present. The abdominal reflexes were absent. There was some tremor of the hands on extension but otherwise the upper extremities were normal.

A lumbar puncture was done April 13, 1914. The pressure was low and after about eight cubic centimeters were withdrawn the flow ceased. The fluid was clear, light yellow color and on standing a few minutes became jellylike. Microscopic examination showed about six red blood cells and two lymphocytes in the fluid per cubic millimeter. Globulin and albumin were much increased. Adding 2 cubic centimeters to 1 cubic centimeter of Fehling's solution gave no precipitate but a strong purple color.

Derrien, Mestrezal and Roger (*Revue Neu-*

rologique, 1907, No. 17) report a case similar to this one and were able to find twelve in the literature at that time. They suggested the name "Hemorrhagic Encysted Spinal Meningitis." The pathogenesis of the condition is undetermined but antisyphilitic treatment has not been beneficial and the injection of electromercurol or collargol has proved harmful—the medicament remaining at the point of injection. Repeated daily lumbar punctures have benefited two cases.

A somewhat similar condition of the spinal fluid may be found in spinal cord tumor especially in cases of diffuse sarcomatosis of the pia.

In both of these cases there can be little doubt that the condition actually causing the symptoms is a myelitis and from the history obtained of the gradual onset of the progressive character of the symptoms, it seemed likely that something was gradually compressing the spinal cord. No compression by bone or tumor was found at operation and it is quite possible that in both cases the compression was due to a local accumulation of fluid—in the first case a localized serous meningitis and, in the second, a hemorrhagic meningitis. In both cases, but especially in the first case, the relief of pressure by a laminectomy and opening the dura gave relief of some of the symptoms.

DISCUSSION.

DR. THEOPHIL KLINGMANN: Dr. Camp has covered the subject so thoroughly that there is very little to add. I may say, however, that the cases reported show very clearly that they are like many others that we see in which operative interference came too late. However, operation brings improvement and possibly cure if it be done early enough. The disability is due to changes in the spinal cord, the result of pressure.

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- (1) A CASE OF CHANCRE OF THE LIP
WITH EARLY INVOLVEMENT OF
NERVOUS SYMPTOMS FROM
SYPHILIS OF A FUL-
MINATING TYPE.
 - (2) A CASE OF DERMATOSIS IN A PA-
TIENT EXHIBITING MEDICAL,
NEUROLOGIC AND PSY-
CHIATRIC FINDINGS.

UDO J. WILE, M.D.

(From the Clinic of Dermatology and Syphilology, University Hospital, Ann Arbor, Michigan).

CASE 1.

I have taken the liberty of demonstrating two cases tonight rather than one. The first case is shown on account of the unusual localiza-

tion of the primary sore and on account of the fulminating character of the symptom complex which it illustrates. This man is 21 years old and enters the Hospital for a sore on the lower lip. If you inspect this sore you will note that he has a crusted lesion on the lower lip and at the same time a large tumor mass on the left angle of the jaw. The history of the case is that he contracted this sore four weeks ago. Within a very short time it took on the characteristics of induration and very soon it reached its present size. Now the usual period of incubation of the primary sore from the time of infection until the time it has reached its full development is about four weeks, and from this time until the secondary manifestations are shown or the secondary period takes place, varies from four to seven weeks. In this individual, however, there is present together with the primary sore and the adenopathy, a roseola and a papular rash over the body. There is a belief among medical practitioners that extragenital lues takes a much more serious course than does lues in which the primary sore is contracted on the genitalia. *A priori*, there would seem to be no reason for this. The reason is an apparent one. The extragenital sores are less frequently properly diagnosed and for this reason are less frequently treated from the outset, and the time lost in the early treatment influences the frequency of the late sequelae.

In addition to the secondary manifestations which are present in the primary period, this man has a distinct involvement of the nervous system. The lumbar puncture shows a marked lymphocytosis, positive Wassermann and increase in globulin and albumin content.

The etiology of a sore of this kind is usually osculation. It must be remembered, however, that extragenital sores of the lip may occur from mediate as well as immediate contact. A sore of this nature could easily occur from an infected drinking cup, from table ware, pipes and cigarette holders, as well as from genito-buccal contact. The apparent reason, I think, for the fulminating character of the disease in this case can be explained on anatomic grounds. There is much less resistance in the subcuticular structure of the mucous membrane than there is in the subcuticular structure of the skin. The glands are much more quickly involved and would seem more susceptible to the organism when the mucous membranes are involved in the primary focus, than when the primary focus is in the skin. It is interesting to note, in connection with the early involvement in this case that Dr. Stokes and I have found that 30 per cent. of all cases in the secondary period have, either with or without manifestations, central nervous involvement. This fact gave rise to the statement of Wassermann

himself that the fate of every luetic patient was determined in the first year. Comparing 30 per cent. of all early nervous involvement with late nervous sequelae, we must conclude that the majority of these cases in which the nervous system is attacked early, undergoes a spontaneous resolution or resolution under treatment. And we may not perhaps be wrong in assuming that these cases in which the spirochaete remain, either because of some particular virulence of the organism, or because of insufficient treatment, or lastly—a point which is extremely difficult to determine—because of the relative susceptibility of the nervous capital of the individual, that these cases develop the late sequelae of lues. The question comes up in a case of this kind, is anything to be gained by destroying the site of the primary sore? I should say at once that nothing is gained at all by excision or cauterization of the primary focus where it is seen in a fulminating case of this kind. This is one of perhaps one hundred foci and to destroy it with any hope of amelioration would mean destroying all other foci. This patient has had arsenobenzol and it is hoped that he may make a speedy recovery without further nervous involvement under further treatment.

CASE 2. The second case is one of more than usual interest on account of the fact that it led to a disagreement in the staff. Now we are particularly interested, in view of the dermatologic findings, in his neurologic condition. It has long been known that pruritic conditions react reflexly upon the nervous system. Patients with scabies, for example, in which the condition is not recognized, who suffer intensely from pruritus, are rendered extremely nervous and irritable, and prolonged neurasthenia can result from chronic pruritic conditions. It is also noted in cases in which there is functional nervous derangement, that dermatoses give rise to much more serious consequences than in patients who are normal. The French have described a distinct dermatosis to which they have given the name "neurodermitis"—a condition simulating lichen planus. I was inclined to regard this case as one in which, in a patient who was neurotic and who had a distinct neurologic condition, perhaps chorea developed from a perfectly banal dermatologic condition, lichenification. Dr. Holmes felt that this case was one of lichen ruber planus on account of the pseudo lichenification. The only way to determine this was to do a biopsy.

DISCUSSION.

DR. JOHN H. STOKES: One point of interest in connection with the case of primary lesion of the lip occurs to me. It is possible to make a laboratory demonstration of the identity of this lesion provided the examiner can use a dark-field microscope, sim-

ply by aspirating one of the glands in the satellite adenopathy in the neck, and examining the serum for the organism. I succeeded in this case in demonstrating large numbers of pallidæ without difficulty. The procedure can be readily carried out with the ordinary hypodermic syringe and a fairly stout needle. The gland should be firmly fixed between the thumb and finger. When the needle pierces the capsule, the gland will of course move with the needle, which should then be twisted about until enough trauma results to make aspiration of some of the contents possible. The procedure is not painful. By aspirating the gland one avoids of course the necessity for making a differential diagnosis between pallidæ and mouth spirochaeta which would be necessary in taking serum from the surface of the lesion. As a diagnostic resort, such a demonstration should be unnecessary to a keen observer, but its employment adds a gratifying sense of completeness to the examiner's study of the case.

The second case is one whose unusual interest is attested by the fact that Dr. Holmes estimated not less than ten different diagnosis to have been advanced to cover different phases of the patient's condition. From the dermatologic standpoint the boy's progress has been very satisfactory. Under bathing, bland local medication of an antipruritic character and the use of Fowler's solution in ascending doses the eruption is rapidly clearing up, even the more prominent papules on the thighs showing signs of involution. The boy perspires profusely at times and after each exacerbation of this trouble presents large numbers of miliary vesicles, especially over the back. The general mental condition seems improved under isolation and the boy is certainly very open to suggestion. The pulse has remained high, the heart sounds normal. In view of the difference of opinion on the diagnosis, of the skin condition, biopsy was taken from three groups of lesions presenting all the typical characters of the eruption, including the vesicles, and this material is demonstrated before you tonight. The pathologic picture is certainly not that of acute lichen planus. The round-cell infiltration of the papillary body, the acanthosis with marked proliferation of the interpapillary processes of the epidermis and root-like extensions downward into the corium are all lacking here. Instead there is marked atrophy of the Malpighian layer of the epidermis, and a fibroblastic infiltration of the papillary body, an increase in connective tissue such as is found in lichen simplex chronicus or neurodermitis. The section is through one of the typical lichenoid papules. The vesicle shown in the other section is of course scarcely diagnostic of the condition. It is very superficial and although the connection with the sweat gland duct beneath is not directly demonstrable, its presence at least lends color to the belief that this may be a sudamical or sweat vesicle, a view which I think Dr. Wile would not discountenance. The pathologic material, then, would identify this dermatosis as lichen simplex chronicus or neurodermitis and not as lichen planus.

DR. JOHN T. HOLMES: Clinically the second case seemed to me to be very much like lichen planus for the following reasons: The eruption was of long standing and there was excessive pigmentation. It was exceedingly pruritic and on the thighs there were certainly small, angular, flat-topped papules. Before coming to the Hospital the case was diagnosed as lues and accordingly had been treated with mercury. Both mercury and arsenic are of value in causing lichen planus to involute and the vesicular elements found on the trunk might have been due entirely to this treatment. Of course there are

quite a number of dermatoses that tend to clear up under treatment with arsenic, just as this case has. Finally the only way of settling the diagnosis is by the pathologic demonstration of sections of the papules, which may be seen under the microscope.

DR. C. D. CAMP: I saw this case only as a referred case and made no prolonged study of it. I think that probably most of the Society have observed while he has been in the room the typical choreiform movement of the patient. They are asymmetrical, irregular movements and might possibly be hysterical, but in my judgment they are too slow for hysterical movements. The latter are quick movements. One has to be guarded in this case because it is quite true that in some instances one finds chronic infections of one kind and another, or chronic intoxications giving rise to choreiform movements which are practically indistinguishable from Sydenham's chorea. The patient is congenitally a deviate, and, therefore, Dr. Wile's suggestion that the nervous manifestations may be simply a result of the skin irritation acting upon a congenitally predisposed individual is quite possible. Changes in the reflexes are common in Sydenham's chorea and maniacal attacks are not uncommon. They are generally spoken of as cases of chorea insaniens. I am inclined to believe that we are dealing with a case of Sydenham's chorea.

DR. HARRY SCHMIDT: This patient was referred to Medicine for examination. I could not obtain a history from him as he was apparently very dull and refused to answer questions. At the time I saw him he had no muscular twitching and there was a fine tremor of the hands and fingers. There was no exophthalmos but a very definite Von Graeffe. His pulse rate had been running between 120 and 136, his skin was warm and moist. He had no temperature. There was a brown pigmentation over the trunk, back and arms. The case was diagnosed as exophthalmic goitre, in spite of the fact that he had no exophthalmos, and no definite goitre. Dr. Hewlett saw the case later and concurred in the diagnosis of Sydenham's chorea. The most convincing symptom against Grave's disease is his apathy and dullness.

(1) A CASE OF BILATERAL SPECIFIC DISEASE OF THE LABYRINTH WITH LEFT FACIAL PARALYSIS OF THE PERIPHERAL TYPE.

(2) A CASE OF OTITIC THROMBOSIS OF THE SIGMOID SINUS. WITHOUT SYMPTOMS.

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CASE 1. I wish to present this case of specific disease of the labyrinth, which has very kindly been referred to me by Dr. Wile for investigation of the ear condition. The salient points in the history are as follows: The patient is a man twenty-four years old. The initial lesion occurred seven months ago and was followed by no secondary rash. Three months ago he received one injection of salvarsan and

following that took mereury pills for two months. For two months he has had tiinnitus in both ears, more marked in the right. The hearing became affected about three weeks ago. He has had no nausea nor vomiting, but has had some little dizziness. Two weeks ago, he entered the Clinie of Dermatology, where the Was-sermann on the blood and spinal fluid was found to be positive. He immediately received three grains of neo-salvarsan. Two days later (April 3) the left side of the face became completely paralyzed. This paralysis was still complete on April 7th, on which day he was first seen in the Clinic of Otology. Since the paralysis occurred, he has received two more injections of neo-salvarsan.

April 7th, on his first examination in the Clinic of Otology, he showed the following functional test:

A. B. R.		A. B. L.
1 ft.	Convers. Whisp. Noise Appar. Hearing Tube	2½ ft.
Pos. —9	Weber Rinne Schwabach	Pos. Pos. —5
A. B. R. —24	C1 a1 c2 c4 Calton Stenger	A. B. L. —14
—7		+5
Plus Plus	Vertigo Tinnitus Equil Dist. Spont. Nystag. Caloric Nystag. Nystag. after turn. Galvan. Nystag. Fistula Symptom	Plus Plus
Slightly Reduced 18"		Slightly Reduced 15"
0		0

The Weber in the better ear, the positive Rinne, the decreased bone conduction, the lowered high limit, all point indubitably to an auditory neuritis, while the decrease in the vestibular irritability as shown by the calorie and turning tests, indicates the involvement of the vestibular branch, although to a less degree. There was a complete left sided faeial paralysis. with loss of the sense of taste of the same side.

Following this examination, he reeeived two injections of neo-salvarsan in the Clinic of Dermatology, and has improved steadily under this treatment, both as to his hearing and to his facial paralysis. His present hearing test is appended:

A. B. R.		A. B. L.
3'	Convers. Whisp. Noise Appar. Hearing tube	5'
Pos. —7"	Weber Rinne Schwabach	pos. Pos. —5"
A. B. R. Slightly	C1 a1 c2 c4 Galton Stenger	A. B. L. Slightly
Slightly		Slightly
	Vertigo Tinnitus Equil Dist.	
1° Rotary wild Normal 20"	Spont. Nystag. Caloric Nystag. Nystag. after turn. Galvan. Nystag. Fistula Symptom.	1° Rotary wild Normal 20"
0		0

The facial paralysis has almost disappeared. All voluntary movements are perfect, but in involuntary winking, one sees that the left eyelid is closed over the eye more slowly than is the case on the other side.

To me, the interesting points in this case are these:

First: This patient had an acute syphilitic auditory neuritis, was treated for it with neo-salvarsan, and is making a satisfactory recovery of his hearing. In the past, those cases of syphilitic auditory neuritis, treated with salvarsan, have become worse. Indeed, the results have been generally so disastrous to the hearing that a syphilitic involvement of the auditory nerve has been considered an absolute contra-indication to the use of salvarsan. The reason for this is perfectly clear. The cochlear nerve is very loosely bound and if attacked by the syphilitic process, promptly becomes markedly edematous. If during this stage salvarsan is administered in the dose usually employed, the reaction is so great as to completely destroy the function of the nerve, or at least to cause enough swelling to bring about an atrophy from pressure against the walls of the bony eochlea. Dr. Wile has apparently avoided this destruction by using neo-salvarsan in very small doses until a definite therapeutic effect has been noted. With this point in mind, I think we may venture to try salvarsan again in the form of neo-salvarsan, even in cases of auditory nerve involvement.

A second point of interest in this case is that the lesion of the facial nerve can be de-

finitely localized in the labyrinth by the fact that the chorda tympani is affected on the corresponding side.

CASE 2. Otitic thrombosis of the sigmoid sinus very generally exhibits even in the early stages of the formation of the thrombus certain symptoms which point with more or less certainty to the presence of this condition, that it seems worth while to report this case of complete thrombosis, which exhibited no symptoms of the presence of the thrombus.

Harry S., fourteen years old, presented himself in the Clinic of Otology on account of trouble which he had been having with the left ear for the past four weeks. This trouble began with pain which lasted for a few days and was followed by rupture of the tympanic membrane and the appearance of a serous discharge. Since then he has had but slight pain in the ear, but has had considerable discomfort in the left side of the head ever since. The important points in his examination included drooping of the posterosuperior canal wall, perforation of the tympanic membrane in the posterior half with considerable bulging of the entire membrane and the appearance of a seropurulent discharge in the external auditory canal. Slight mastoid tenderness was present over the antrum. He was advised to enter the Hospital for operation, but disappeared from observation for ten days, at the end of which time he showed a uniform, tender, brawny, swelling beneath the tip of the mastoid. The ear condition was about the same, the white count was 13,800, with 74 per cent. polys. On the following day, a complete mastoid operation was performed. Retraction of the soft parts showed the mastoid process discolored and with many bleeding points. The mastoid process was of the large pneumatic celled variety and was everywhere filled with granulation tissue and pus. The bone of the sigmoid groove was destroyed. The sigmoid sinus was covered with a large mass of purulent granulation tissue, pressure upon which showed that there was bone underneath it. The sigmoid sinus was opened and found to be completely thrombosed from the knee to a joint just above the jugular bulb. Free hemorrhage was secured from above but not from below. Careful manipulation proved that the bone underneath the sinus was a part of the sigmoid groove and that the thrombosis had so distorted the sinus as to force it out of its natural bed and to allow this portion of the sigmoid groove, probably as large as the little finger nail, to become buried in the dura of the inner sinus wall. On account of the fact that the thrombus was not infected, it was not deemed necessary to resect the jugular. The operation was completed without incident.

Except for the fact that it became necessary

later to evacuate a collection of pus in the neck the convalescence was uneventful. This case is reported simply in order to put on record another case of complete obliteration of the sigmoid sinus without any symptoms by which the observer could be led to suspect the condition.

DISCUSSION.

DR. UDO J. WILE: I am quite prepared to agree with Dr. Canfield that there are certain cases of cranial nerve disease in which salvarsan is definitely contraindicated. Such are the cases in which the nerves are primarily diseased before treatment, a case of deafness, for example, or neuro-retinitis, or optic atrophy. In such cases it is better to institute other forms of treatment before salvarsan is administered. These are quite different from the cases in which the cranial nerve involvement comes on during a course of treatment with salvarsan. Such cases constitute the so-called neuro-recurrences, which were supposed at first to be due to the salvarsan toxicity itself. In a personal communication with Professor Ehrlich last summer, I had these neuro-recurrences explained satisfactorily. According to Ehrlich all these cases are due to basilar meningeal involvement. If a small dose of salvarsan be given in such a case, a Herxheimer reaction is apt to occur at the site of the foramen and marked accentuation of the process occurs, causing a pressure of the nerve trunk in the foramen, and consequent partial or complete paralysis. With the second dose of salvarsan, however, in these cases, as in the one before you, this finally disappears; the Herxheimer reaction and meningeal reaction subside and the nerve disturbance at once clears up. Therefore in an early case of cranial nerve disease in secondary syphilis, one may be dealing, in the first case with a true neuritis, and on the other hand with nerve affection due to pressure from edema.

DR. C. D. CAMP: This case strikes me as being very interesting and unusual. It is the only case I have seen in which facial palsy presumably due to syphilis was caused by involvement of the facial nerve in the Fallopian canal. In most cases of facial paralysis due to syphilis a basal meningitis is the cause of the paralysis. The loss of the sense of taste indicates that the facial palsy is due to a local extension of a syphilitic labyrinthitis.

DR. A. J. LORIE: This case is extremely interesting on account of the rapid recovery from facial paralysis. When he was first examined, he had practically complete facial paralysis on the left side. These patients recover, but not always as rapidly as this one.

The cases of eighth nerve deafness following the administration of salvarsan, may perhaps be due to the character of the eighth nerve. This nerve as we know is more or less embryologic in character being loosely bound and the fibers having considerable room in their sheath. Following infection by the spirochete, we get a certain amount of edema. This edema is increased as we know it is with the Herxheimer reaction. The nerve fibers swell, but as they are enclosed in a tight bony canal, there is always a liability of pressure necrosis.

The seventh nerve, while it runs in a bony canal also is a very highly developed nerve with a tight sheath, which does not permit of the edema and separation of fibers as does the eighth. This may account for the difference we find in the two nerves following the administration of salvarsan.

DR. UDO J. WILE: I wish to say that I still regard this patient as having basal meningitis. Before any of the symptoms of seventh

nerve palsy developed his spinal puncture showed a very definite lymphocytic increase and a very strong positive Wassermann. It appears to me that this case, notwithstanding that it is a Bell type of palsy, is still the extension of basal meningitis. In reply to Dr. Slocum's question I will say that the patient complained of burning and stinging in the affected eye.

DR. CANFIELD (closing the discussion): I am able to agree with both Dr. Camp and Dr. Wile. With Dr. Camp I agree that this auditory nerve deafness is due to disease in the labyrinth and is not due to a basal meningitis. This fact is very clearly demonstrated by the functional tests. I am able to agree with Dr. Wile that the patient has a basal meningitis because the character of the spontaneous nystagmus supports this opinion.

FOUR UNUSUAL CASES OF STRABISMUS PRESENTED FROM THE STANDPOINT OF DIAGNOSIS.

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The cases which are about to be presented have several features which are of interest from the standpoints of etiology and diagnosis.

CASE 1. E. A., age 35 years, first entered the eye clinic about three years ago complaining of itching and epiphora in both eyes. At that time she was refracted and glasses were prescribed for astigmatism. Vision in the right eye 6/6, left eye 6/7.5.

March 10, 1914 the patient returned to the Hospital complaining of a drawing sensation in the left eye which had been present for about three weeks. Two weeks ago she suddenly noticed that the left eye had turned in. Diplopia was not mentioned by the patient but careful questioning showed that it was at times present. Patient says a transient diplopia lasting about two weeks was present about four years ago.

The amount of convergence, as measured by the Priestly Smith method, is 31 tangent degrees. Pupillary light reflexes absent, accommodative reflex present, excursions rather small. Pupil of the right eye larger than that of the left eye. Examination with prisms and Maddox rod gave an esotropia, convergent strabismus, varying from 31 to 42 degrees. Refraction shows the presence of one diopter of simple hyperopic astigmatism in each eye.

On March 30th the primary deviation measured by Priestly Smith method was 52 degrees, the secondary deviation 65 degrees.

The first point of interest this patient presents is the bilateral epiphora without nasal obstruction. Bilateral epiphora without nasal obstruction coming on without inflammatory symptoms is always strongly suggestive of a luetic infection, the pathology of the process in the nasolachrymal ducts being analogous to

similar luetic processes in the periosteum and mucous membranes of the nasal passages. This symptom has been more or less prominent in this patient for the last three years.

The next point of interest is the absence of the pupillary reflexes, which of course strongly suggests *tabes*.

A paralysis of one or more of the extraocular muscles is always suggestive of a luetic infection. We have, therefore, three important and apparently related symptoms, epiphora, loss of pupillary light reflex, and paralysis of the external rectus. We were, therefore, not surprised to receive a report from the Neurological Clinic that there is a loss of the knee jerks and that the patient is suffering from *tabes*, nor was it any more of a surprise that the Clinic of Dermatology reported that she has a positive Wassermann reaction. The fundamental cause of her trouble may therefore be considered as established.

The differential diagnosis between a paralytic and spastic strabismus is usually not difficult. In spastic strabismus the excursions are equal in all directions and diplopia is nearly always absent. In paralytic strabismus diplopia, when present, increases as the patient looks toward the paralyzed muscle, and diminishes or disappears as the patient turns the eye into the

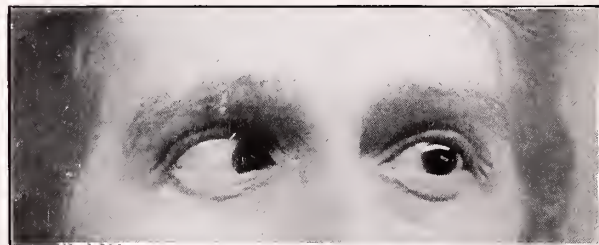


Figure 1. Case I. Showing primary deviation, fixing with normal eye.



Fig. 2. Case I. Showing secondary deviation on fixing with the paralyzed eye.



Fig. 3. Case I. Showing secondary deviation on attempting to turn the eyes to the left.

opposite field. In this case the excursion of the left eye in the direction of the paralyzed muscle is visibly limited until a strong stimulus is given, that is, when the limit of the nasal field for the right eye is reached and the patient continues to try to look toward the left, the left eye is able to turn practically to its normal extent. However, when this effort is made a convergent deviation of the unaffected eye follows which, as you see, is about 15 or 20 degrees in excess of that of the affected eye.

In this case diplopia is not a prominent feature possibly because the vision of the left eye is not as good as that of the right, possibly because a slight paralysis of the left external rectus may have persisted since the first attack four years ago and because the patient has learned to hold the head in such a position that no diplopia is present. When we observe this patient closely we notice that there is quite a marked tendency for the patient to turn her head toward the affected muscle in order that no demand for action may be made of this muscle and the eyes are thus permitted to assume the same position of parallelism as they take when the patient looks away from the affected muscle.

When diplopia is present in paralytic strabismus we are generally able to plot a diplopia chart. In taking a field of diplopia the affected eye is usually covered with a red glass so that the image having a false position is also red. By this means it is at once evident whether the false image is vertical or crossed or homonymous, that is, whether an adductor or an abductor, an elevator or a depressor is affected,

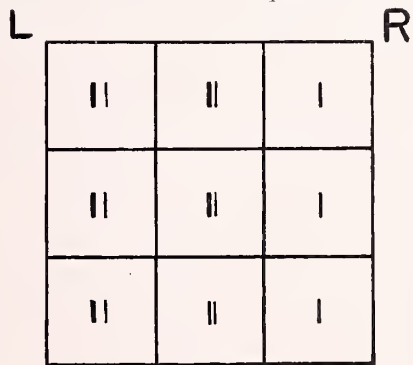


Fig. 4. Diplopia homonymous and present in the field of action of left external rectus; (heavy mark indicates left eye.)

and whether torsion is a feature of the diplopia, and if so, in what portion of the field the torsion is most pronounced. Having thus obtained the relative position of the false image we have only to remember the muscle which has the corresponding physiologic action and the diagnosis is complete.

Where more than one muscle or more than one eye is affected, the diplopia chart is less valuable and the diagnosis as to what muscles

may be involved is often very difficult. In this case the patient fixes with the right eye and the left is crossed; the secondary deviation of the right eye is greater than the primary deviation of the left, the affected eye; the diplopia is absent on looking to the right, present on looking to the left; the diplopia is homonymous; while the left eye does not at first follow the movement of the right eye toward the left. After the limit of the nasal fluid for the right eye is reached the left eye is able to make a nearly complete left lateral excursion and a secondary deviation at once appears in the right eye which is greater than the primary. The strabismus is therefore paralytic and partial and is caused by a loss of power of the external rectus of the left eye.

In the management of this case, the lues should be properly treated and the general health and welfare of the patient be taken care of with such treatment of the tabes as seems to be advisable.

As to the local treatment, the patient's correcting glasses should of course be worn in order that the normal balance between accommodation and convergence may be maintained. Operation should be considered, only to be indefinitely postponed as these cases often completely recover. The patient may be encouraged to yield to the tendency to turn the head toward the affected muscle just enough to cause the diplopia to disappear. This will not only relieve the distressing symptoms such as nausea, vertigo, uncertainty, etc., which are often present, especially in deviations of a moderate degree, but it will have a tendency to stimulate any remaining power in the affected muscle, especially if the head is turned only enough to cause the diplopia to be nearly overcome by the position of the head, permitting the muscle to attempt the completion of the act of fusion and to prevent the tendency to the development of an amblyopia exanopsia in the deviating eye, a condition which nearly always does develop where there is a long continued loss of binocular vision from a continued deviation of one of the eyes.

CASE II. J. W., age 20, came to the clinic March 30, 1914, in order that he might have his right eye straightened. The patient says his eyes were never injured and that his right eye has deviated outward since birth.

His vision is, OD counts fingers at 20 inches in the temporal field, O. S. 5/4. Pupillary reflexes, direct, consensual and accommodative are normal. His intraocular tension is normal. His right eye diverges about 60 tangent degrees by the Priestly Smith method. Ophthalmoscopic examination shows that the media are clear and the fundus is apparently normal in each eye. Both eyes are slightly hyperopic, the right somewhat more than the left. You will

notice when the patient follows a moving object with the fixing eye, the left, that his right eye moves in the same direction as the left and to the same degree in all portions of the field of fixation, that is, the squint is comitant. Further, on covering the fixing eye, the movements of the deviating eye are now apparently normal in all portions of the field, that is, the movements of the squinting eye are normal; then again, the primary and secondary deviations are equal. This case is therefore one of spastic exotropia or divergent squint.

Probably the most interesting feature of this case is the fact that the patient has a non-paralytic *divergent* strabismus associated with a *hyperopic* error or refraction.

The causes of spastic squint may be, (a) failure in the development of fusion power, (b) relative over stimulation of convergence by an accommodative effort made necessary by the presence of a marked hyperopia, or under stimulation in the presence of myopia, (c) a marked difference in the refraction of the two eyes, anisometropia, (d) amblyopia in one eye from congenital defect marked anisometropia, or from disease, (e) amblyopia or amaurosis in one eye due to opacities in the media or disease. Generally the refractive element in the etiology of strabismus is present in all cases of convergent squint no matter how many, or which of the other mentioned causes are present. In fact, always perhaps associated with undeveloped or partly developed fusion power, relative imbalance between accommodative and convergent stimulation is the main factor in a large majority of the cases of spastic squint. To explain this case, however, we must take another variety of muscular defect or error which does not usually enter into the production of strabismus, namely, the so-called phorias, sometimes called latent squint.

In routine examinations of the eye one discovers a large number of cases in which as soon as binocular vision is suspended, for example with a prism or a Maddox rod, one discovers a position of rest for the two eyes in which the visual axes do not point toward the same place, but in different directions, that is, the visual axes diverge or converge, or one axis points higher than the other. Such cases, not having any manifest deviation under normal conditions but showing deviations as just given, are said to have exophoria, esophoria or hyperphoria as the case may be. Now it is evident that when one eye of such a patient becomes injured or diseased, so that vision is no longer at all equal, the stimulus for fusion, that is, the effort to maintain the image on the corresponding points of the two retinæ will no longer be made, the eyes will then tend to assume a position of rest, the previously existing phoria or latent squint will become manifest, and the eye will diverge

if the previous condition were one of exophoria, converge if it were esophoria, or deviate upward or downward if hyperphoria were present.

Inasmuch as in this case, there is no marked refractive error, the strabismus is probably not due to relative over or under stimulation, nor can it be due to anisometropia; since the eye is to all appearance normal it is evident that the deviation is not caused by opacities of the media or by disease. There remain, therefore, two possible etiologic factors for consideration, first, a failure of fusion; second, a congenital amblyopia. As to the failure of development of fusion power in this case one can only say, we have no visible ocular defect, no marked refractive error, no anisometropia to explain the strabismus. We are, therefore, forced to conclude that the failure of fusion is not so much due to lack of development as it is to the amblyopia. If this were a case of acquired amblyopia, that is, one of amblyopia exanopsia, the amblyopia would follow one of the causes of strabismus which we have already ruled out, or it would follow as a result of a deviation for which no adequate cause has been found. It is true that a convergent squint might develop as a result of a hyperopia which has disappeared later during physiologic development, but this case has always been divergent. Of course it must not be forgotten that myopia and divergent squint are often associated but we have ruled out myopia. Are we not, therefore, justified in concluding that we have here one of those rare cases of congenital amblyopia in which fusion failed to develop, not because of any defect of a fusion center, but because no benefit would result if fusion did develop? Only one thing more is necessary and the analysis of the conditions will be satisfactory. If this patient had been born with a relatively perfect anatomic arrangement of the ocular muscles, both as to their innervation and as to their origin and insertion, the eyes might still have assumed a relatively normal position, but this was probably a case in which if in every other respect the eye had been normal, there would still have been an exophoria present. Given the exophoria, the congenital amblyopia has caused the development of a divergent squint and that too, notwithstanding the fact that there is a small amount of hyperopia, the tendency of which, other things being equal, is always toward the development of an esotropia. If on the other hand the latent tendency had been toward esophoria the resulting strabismus would probably have been convergent.

Cases of congenital amblyopia are rare. Worth reports only seventeen well authenticated cases in his book on squint. Other authors have occasionally reported such cases and in many, refractive errors are present to such a degree that they cannot be positively ruled out as etiologic

factors. It is rare indeed that a case is seen which presents such unique features as does this one.

The treatment of strabismus depends to so great an extent upon its cause or causes, and the method of treatment is so interwoven with the diagnosis that it is a matter of some interest to inquire into the best course of procedure in this case. First, we have decided that there is a lack of fusion power which we have no hope of establishing. Second, there is no error of refraction having an etiologic relation to the deviation; there is no anisometropia and for these two reasons the wearing of glasses would not improve the condition. Third, there is no removable cause for the amblyopia. Fourth, because of the age of the patient it is unlikely that the deviation could be corrected even if there was a refractive error or an anisometropia, the correction of which would establish a normal balance of stimulation and improve the vision. Fusion power can only be established in cases which are treated early, especially if amblyopia is an important feature.

It would seem necessary, therefore, to adopt some surgical means of correction. We have a choice of three operations for the correction of the divergent strabismus: One is a tenotomy of the external rectus muscle; a second is advancement of the internal rectus; a third is a combination of these. Tenotomy of the external rectus seldom gives an improvement of 10 degrees deviation, usually much less. Advancement of an internus may relieve a deviation of 15 or 20 degrees. On the other hand a combination of the two procedures often gives a very large gain. This case has a deviation of 60 degrees, therefore the combined operation is the one indicated. It is not at all unlikely that a similar operation on the other eye may be necessary before complete parallelism can be restored. In discussing the question of why an operation on the fixing eye could be done with benefit one must remember that this is a case of comitant strabismus, that comitant squint is spastic and that in spastic squint the over action is about equally divided between the associated antagonists, that is, between the interni in convergent, or between the externi in divergent squint. The mechanism is as follows, taking the present case of extropia as an example: first, the spastic condition develops, in this case because of muscular imbalance; second, because of some one or more of the other causes, in this case a monocular congenital amblyopia, the eyes yield to the spastic impulse and diverge, the amount of divergence being equally divided between the two eyes; third, because of the fact that we must direct the visual axis toward an object in order to see it distinctly, one eye must be used for fixation, usually the better eye as in this case, and the deviation is made to appear to lie in

one eye only, that is, in the nonfixing eye. Now as soon as a surgical correction of the deviation is done by an operation on the deviating eye, the necessity for fixation again divides any remaining error between the two eyes as before, and a further operation on the fixing eye will affect the mechanism of the deviation in the same way as did the former operation on the deviating eye.



Fig. 5. Case II. Showing deviation of amblyopic eye.



Fig. 6. Case II. Showing improvement obtained from the first operation.

CASE III. C. R., age 38 years, referred to the eye clinic from the Neurologic clinic by Dr. C. D. Camp, March 29, 1914, where the patient was being treated for sacroiliac and sciatic rheumatism. The patient gave the following history:

When he was two years of age he was wounded in the right eye with a table fork. Since that time the right eye has turned out and the vision in O. D. has been poor.

His vision is as follows: O. D. counts fingers at 6 inches, O. S. $5/4$. Pupillary reflexes, direct, consensual and accommodation are normal O. U. His intraocular tension is normal. His right eye diverges about 50 tangent degrees by the Priestly Smith method. External examination of O. D. shows a deep anterior chamber, iris flat, lens absent, lens capsule fills pupillary space excepting nasally, where a fundus reflex can be seen with the ophthalmoscope, but because of the smallness of the opening and the presence of capsular fragments (secondary cataract) no fundus details were obtained. Ophthalmoscopic examination shows that the fundus of O. S. is normal and that there is very little if any refractive error present.

Examining the patient in the same way as we did Cases I and II we find extraocular movements normal in every direction, the same relative position of the eyes being maintained in all portions of the field of orientation excepting that on accommodation for the near point, the divergence is appreciably lessened. The primary

and secondary deviations are equal. We have here therefore a second case of comitant divergent squint of much the same type as that of Case II, differing, however, in a part of the etiology and in the type of amblyopia. The difference in the etiology lies in the fact that in Case II the amblyopia is probably congenital, while in this case it is due to traumatic aphakia causing high hyperopia in O. D. and as a consequence very marked anisometropia complicated with a loss of accommodation in the right eye. It is probable that the determining factor of the divergence was, as in the other case, a latent divergent squint or exotropia.

The treatment of this case is like that of Case II. The question as to the advisability of the wearing of glasses for the correction of the monocular aphakia is one of considerable interest. Inasmuch as the focal distance of such a correction must be much greater than that of the intraocular lens of the other eye, the image on the retinae in the two eyes cannot be the same. A correction of an aphakic eye cannot supply the lost accommodation, therefore, while the perfect eye can accommodate for all distances up to the near point, the aphakic eye can only see at the distance for which it is corrected and change of focal distance can only be obtained by changing glasses. It would therefore be illogical to expect an aphakic eye to functionate for binocular vision with a normal fellow eye, and in actual experience such is found to be the case. For this reason, therefore, a correcting cataract lens is not prescribed in monocular aphakia where the vision in the other eye is functionally satisfactory.

As to the treatment of the strabismus the indications are the same as in Case II. We have here an amblyopic diverging eye, the character of the deviation being spastic or nonparalytic for which no treatment can be advised other than surgical interference for the improvement of the patient's appearance.

The choice of operation and technic to be followed are practically identical. As the amount of deviation is somewhat less there is more hope that an operation on one eye may be sufficient, although the chances are somewhat against this being the case.

The patient was transferred to the Clinic of Ophthalmic Surgery for operation March 31, tenotomy and advancement being done on O. D. two days later. The following photographs show the position of the eye before operation and the nearly corrected position after.

The question as to the best time for a second operation is of interest. Often these cases show complete restoration at the time of operation; during convalescence and for several weeks afterward the deviation often appears to be under corrected, later a secondary improvement sets

in, until after a year or two the eyes often will have become parallel.

CASE IV. G. S., age 32. Patient entered the clinic March 5, 1914, hoping that his eye might be straightened. He gave the following history: Thirteen years ago his head was crushed by a log rolling over it; patient was unconscious for three weeks following this injury. At the time of the accident the right eye was seriously injured and both eyes bulged forward for some time afterward. During convalescence fragments of bone were removed from the right side of his head. Since the accident, vision in the



Fig. 7. Case III. Showing deviation of aphakic eye.



Fig. 8 Case III. Showing improvement obtained by first operation.

right eye has been very poor; both eyes have been constantly convergent and only by turning the head to the left is the patient able to see well with the left eye.

His vision is O. D. 2/60, O. S. 6/7.5. Pupillary reflexes impaired especially in O. D. The patient's eyes are both strongly converged, elevation and depression present but limited; neither eye can be brought from convergence to the median line when the other eye is covered, and on making such an attempt with either eye the covered eye shows a marked increase of deviation (secondary deviation). The amount of convergence measured by the perimeter was O. D. 65 degrees, O. S. 20 degrees.

Diagnosis: bilateral abducens paralysis probably from fracture of the base of the skull with injury of both sixth nerves either at the time of the accident or subsequently from hemorrhage, or from inflammatory reaction following the trauma.

The patient was referred to the Neurologic Clinic from which was reported a paralysis of both sixth nerves, right sided paralysis of the seventh and eighth nerves, probably from fracture of the base of the skull with hemorrhage.

The stereo plates taken in the X-Ray Department by Dr. Van Zwaluwenburg, failed to show definitely the position of the fracture, although some localized density was discovered

in the region of the squamous portion of the temporal bone.

Wassermann blood examination made in the Dermatologic Clinic gave a negative reaction. External examination reveals a scar of the cornea with anterior synechia and shallow anterior chamber, O. D. Other than the deviation, the appearance of O. S. is normal. On attempting to bring the left eye to the primary position the right eye shows a marked nystagmoid movement.

Ophthalmoscopic examination: O. D. Fundus reflex but no details. O. S. No fundus lesion, eye hyperopic with hyperopic astigmatism.

This case is entirely different from Cases II and III, which were spastic and divergent, and somewhat different from Case I, first, as regards etiology, in the one case lies in the other case trauma; second, in regard to the degree of paralysis, in the one case partial abducens and unilateral, in the other case total sixth nerve paralysis and bilateral, with involvement of the seventh and eighth nerves also. The first is a paralytic case which has a fair chance of recovery and which is certainly not operable, the fourth case is paralytic with, after thirteen years standing, no prospect of recovery unless operation is undertaken.

When an operation is performed on a non-paralytic or spastic squint, after the operation the eyes will move freely in all directions; on the other hand when a paralytic squint is operated no improvement in the functional activity results but the eye remains as fixed and none the less limited as to movement as before, notwithstanding any improvement in the position of the eyes that may be obtained; further, because all attempts to move the eye or eyes into the field of action of the paralyzed muscle will be associated with an extra stimulus to the opposite eye to move in the same direction, secondary deviation with paralytic strabismus will always be manifested in the field of action of the paralyzed muscle, consequently the eyes can be parallel or appear to be normal only when they are in the primary position. In this case the vision in the right eye is poor, consequently there will be a tendency to fix with the left eye and perhaps a corresponding tendency to the development of an unilateral squint due to a secondary deviation of the right eye.

The operation to be done in the fourth case must secure a correction of 85 degrees perimeter measurement which represents a much greater deviation than 85 tangent degrees. Consequently it will be necessary to secure the greatest amount of correction possible at a single time.

To secure such a result, it will be necessary to operate upon both eyes, doing a combined tenotomy and advancement in each eye.

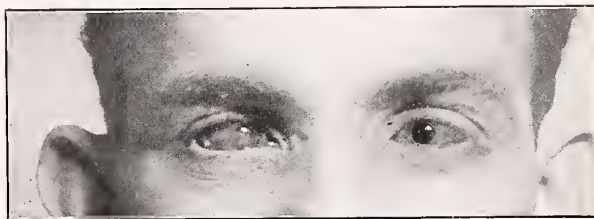


Fig. 9. Case IV. Showing amount and character of deviation.



Fig. 10. Case IV. Showing immediate improvement after the first operation. Tenotomy and advancement of both eyes.

This operation was performed on this patient March 16, 1914. You observe that O. S. is now in its normal primary position and that already there is a tendency for O. D. to converge. For the further improvement of his appearance and in order that O. D. may be straight it will probably be necessary to do another operation on O. D. at some later time.

These four cases present three different types. Case I, nonoperable, paralytic, convergent strabismus requiring constitutional treatment, correction of refractive error, and patience. Case IV, operable, bilateral, paralytic, convergent strabismus requiring operation and correction of refractive error. Cases II and III, nonparalytic or comitant squint, the one congenital in origin, Case II, the other traumatic, anisometropia, aphakic, Case III, both requiring the same kind of operative treatment; neither having etiologic or influencing refractive error.

When a refractive error, such as hyperopia with convergent or myopia with divergent strabismus in a child, is under consideration the error of refraction must be determined and practically the full correction given, the amblyopia must be treated when present, and operation postponed, only to be considered after the age of eight or ten years in cases in which the eyes are not straightened when the glasses are worn, and in such cases, not until after the wearing of the correction at least a year or more.

These cases are reported by the kind permission of Professor Walter R. Parker.

DEMONSTRATION OF THE ELECTRO-CARDIOGRAPH.

FRANK N. WILSON, M.D.

Assistant in the Department of Internal Medicine, University of Michigan.

The department of Internal Medicine has recently acquired a string galvanometer for the study of diseases of the heart. Each heart beat produces electrical changes in the body. These may be recorded by attaching the electrodes of this very sensitive galvanometer to the arms or legs of the patient. The currents induced by the heart action pass through a single string of very fine silvered quartz wire, which is placed between the poles of a strong electro-magnet at right angles to the lines of force. The currents passing through the fiber cause lateral deflections of it, which are approximately proportional to the strength of the current. The movements of the wire or fiber are recorded by projecting its image upon a moving film.

The instrument which is being used in the Department of Internal Medicine is Einthoven's latest model. In this instrument, the fiber is about 3.5 microns in diameter and has a resistance of from six thousand to ten thousand ohms. Its sensitivity can be varied by varying its tension. The usual degree of sensitivity employed is a deflection of the image of one centimeter for each millivolt. The speed of deflection is very great.

The instrument gives one the same sort of information as polygraph tracings, but the records are more easily obtained and more easily interpreted. The cardiac irregularities, especially, belong to the province of this instrument, and of these especially, auricular fibrillation and premature beats. It is possible to localize the origin of the latter very closely. Abnormalities in the conduction of impulses, which are sometimes impossible to recognize by polygraph tracings, as when due to lesions of the branches of the His bundle are easily recognized in the electrocardiograph tracings.

The 49th Annual Meeting Michigan State Medical Society

Will be held in

Lansing, Ingham County

on

Thursday and Friday

September 10-11, 1914



Your Presence is Urged

The Journal
OF THE
Michigan State Medical Society
ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

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JUNE

Editorials

FORTY-NINTH ANNUAL MEETING.

The Ingham County Medical Society invites you to attend the 49th Annual Meeting of our State Society that is to be held in Lansing on September 10 and 11. The profession of Ingham County is actively engaged in perfecting the arrangements for this meeting and they give you every assurance that your every want will be well taken care of. As advance information we are imparting the following:

MEETING PLACES.

All General Sessions, Council Meetings, Section Meetings and Meetings of the Secretaries Association will be held in the Capitol. Here also will be found all the commercial and scientific exhibits. There is ample room in this building for all purposes.

COMMITTEE CHAIRMEN.

Dr. Samuel Osborn, President of the Ingham County Medical Society has appointed the following chairmen of the various committees:

- Arrangements: L. W. Toles.
- Reception: F. M. Huntley.
- Entertainment: C. L. Barber.
- Hotels: H. A. Haze.
- Exhibits: F. J. Drolett.

HOTEL ACCOMMODATIONS.

- Hotel Downey. European. \$1.50 to \$4.00. Capacity 300.
- Hotel Wentworth. European. \$1.00 to \$2.00. Capacity 500.

- Hotel Butler. European. \$1.00 to \$2.00. Capacity 100.
- Hotel Fleming. European. \$1.00 to \$2.00. Capacity 50.
- Hotel Reogrand. American. \$1.50 to 2.00. Capacity 50.
- Hotel New Digby. American. \$2.00. Capacity 50.

The Committee on Hotels will also have a list of rooms in private residences and those who desire such accommodations may secure them by writing to the Chairman of the Hotel Committee.

The Entertainment Committee has not announced its intentions but we may rest assured that they will faithfully discharge their duty and not overlook providing for our entertainment in a unique and pleasing manner.

The August *Journal* will contain the advance program and further information. The September *Journal* will contain the completed program and all detailed information. What is essential now is to plan on going and to make your reservations early. Lastly, if you intend reading a paper before the various sections do not fail to notify the section officers at once.

MODERN TREATMENT OF FRACTURES.

Elsewhere in this issue we are publishing the paper that was read by Dr. M. L. Harris of Chicago at our Flint meeting on: "Modern Treatment of Fractures." This paper is filled with so much that is of practical value to every physician and surgeon that we cannot forego making a few editorial comments thereon and at the same time express the hope that every member will read this excellent and timely article.

Three rules are laid down and emphasized:

A perfect anatomic adjustment of fractured ends, by any method or means of external manipulation, is an absolute impossibility in the great majority of cases.

Keep the patient informed of the exact situation at all times.

Be perfectly certain that you are thoroughly familiar with the exact condition yourself.

Always have X-Ray pictures taken of all fractures.

A perfect functional result is impossible without a perfect anatomical result.

These injunctions, coming as they do from one who has had an extensive experience in fracture treatment, are very pertinent and timely. The X-Ray has done much to awaken us to the necessity of more careful and better treatment of our fracture cases and the open treatment is now accepted as the proper method of caring for all difficult cases.

It is not implied nor is it intended to convey

the teaching that every fracture should be submitted to an open operation. The safe rule is that all irreducible fractures, fractures in which the maintainance of the fragments in apposition is impossible or extremely difficult, should be early submitted to the open treatment and the fragments cast in continuity either by wiring or plating. And right here it may not be amiss to re-iterate the statement of the essayist that when we have attempted to reduce these fractures by means of manipulation that then they should be submitted to an X-Ray examination and our results investigated. Men possessed of exceptional manipulative ability have been unpleasantly surprised when they saw how poor a reduction they had secured when their cases were submitted to the X-Ray examination. One who has had the experience of cutting down on these fractures and seen small fragments, muscle tissue, ragged edges etc., interposed between the fragments realizes very forcibly how impossible it would be to secure accurate apposition by manipulation.

As to the technic of the open operation and the material used this must be determined by the individual surgeon. We are disposed, in spite of the many substitutes that are being offered, to express preference for the so-called Lane vanadium steel plate and the use of no less than four screws in the heaviest plate obtainable for each given fracture. Properly placed and subjected to the proper after treatment it is not necessary to remove them later. And here again we repeat the author's warning: This method of treatment should not be undertaken by one who is not equipped with the proper appliances and who is not thoroughly trained in the special technic of bone surgery. Upon surgical cleanliness developed to its utmost perfection depends much of our success.

A JUDGE'S OPINION.

A certain J. J. Healey of Ionia who conveyed to the public that he was a chiropractic practitioner was arrested under the charge of violating our Medical Practice laws. The case came to trial recently and at its conclusion the trial judge rendered a decision which has caused considerable comment and has created the impression throughout several communities in the state that our medical laws are ineffective and unconstitutional. In view of this we have deemed it proper to publish the trial judge's opinion and ruling and to add thereunto our personal comment.

By Judge F. D. M. Davis.

(I). The Court: I find in this case that the law of 1899, Act 237 provides for the examination, regulation, licensing, and registration of physicians and surgeons, and punishment for offenders against

this act, and repealing acts or parts of acts in conflict therewith. I have come to the conclusion from the study I have given this question that what the law then referred to was physicians and surgeons in the ordinary sense of the term and the understood definition by the majority of the courts to-day is that the practice of medicine includes, mitigating, or alleviating bodily diseases; while the practice of "surgery is limited to manual operations usually performed by surgical instruments or appliances.

(II). For the purposes of this case I shall hold that under the laws of this state one who undertakes to cure disease by mere manipulations as is claimed by the Prosecuting Attorney in his opening is not engaged in the practice either of medicine or surgery within the accepted definition of the term as meant when the law was passed in 1899 and as bearing out that idea I take into consideration the special law that was made in regard to the practice of osteopathy in this state. They, the osteopaths, are not considered as physicians and surgeons. Latterly, there has been a clause requiring them to pass an examination as surgeons.

(III). Now, I find in the law of 1913 in this amendment a clause, third clause in the third paragraph, seeming to indicate that the board is authorized to issue a license or certificate of registration to any person who desires to practice a system of treatment of human ailments or disease who does not in such treatment use drugs or medicines internally or externally or who does not practice surgery or midwifery under the provision of this act.

(IV). I do not find anything in the statute or this amendment that provides such board has any duty imposed upon it to issue any license, whereby applicants could require in any way a performance by a process of law an issuance of a license even though his examination might warrant it, and I do not think that a person assuming to treat disease in that way can be compelled or required to pass an examination before a board that is not required on its part to perform anything in behalf of the people for whom it may be acting.

(V). In part this prosecution is based on section 9 also, as well as the rest of the statute and its amendments; and I find section 9, to what was formally in the old act, added these words; "In this act unless otherwise provided the term 'practice of medicine' shall mean the actual diagnosis, curing or relieving in any degree, or professing or attempting to diagnose, treat, cure, or relieve any human disease or ailment, defect or complaint whether of physical or mental origin, by attendance or by advice or by prescribing or furnishing any drugs, medicine, appliance, manipulation, or method, or by any therapeutic agent whatsoever." That upon this amendment being made by the legislature it was only entitled An Act to Amend Certain Sections of the Old Law of 1899, Amended by Act 91 of the Public Acts of 1903, 56, and 203 of the Public Acts of 1905, 157 and 164 of the Public Acts of 1907, having no reference whatever in the title to the original act nor in the amendments as to this feature contained in section 9; and I agree with the contention of counsel for defendant that as to section 7 the provisions of the statute are confusing, conflicting, and contradictory, insomuch so as to render the law incapable of construction or enforcement as to that paragraph.

(VI). I look upon these laws as being enacted for the purpose of regulating the practice of medicine and surgery and keeping out unqualified men assuming to practice medicine and surgery, not for the purpose of depriving people of performing an

innocent or harmless occupation where injury is not contemplated and cannot ordinarily occur.

(VII). I think you might just as well pass a law to deprive any person from making a deed or drawing a contract simply because he is not a lawyer, as to say a person could not render some aid in sickness although he is not a doctor. I think when it gets to that point when a legislature can say one school of medicine or one system of healing, not shown to be harmful, cannot exist, cannot be done without doing certain things that they are not giving him an equal right with all other systems; that such a law is in conflict with the spirit of the constitution relating to the rights of individuals. It is unreasonable, unjust, and depriving him unlawfully of freedom.

(VIII). Certainly by the strict reading of this statute it is very clear, take it as it reads, that any druggist you go to and ask them for a bottle of medicine and he should let you have it, he is violating this law if he furnished any drug, patent medicine, or appliance. A man suffering from hernia or rupture gets one of these braces that is used, he is violating the law if he sells it to him; he ought to say to that man, "You have got to go to a doctor and get his permit before you can have it." It is just so if my wife is sick, having in attendance a nurse and she has a headache, the nurse undertakes to rub her head, bathe it with a little alcohol, she is liable under this law to a \$300 fine unless furnished by a doctor. It might not have been contemplated by this legislature when they passed the act, but it seems to me such an unreasonable law as it reads.

(IX). If you construe that law in favor of the claim made by the prosecution here in this case and claim that it ought to be enforced that the next legislature could go to work and say it would be unlawful for anyone to hire anybody in this state to treat them when they are sick except as a homeopath, or unlawful to employ anyone unless he is an allopath, and nobody else can practice medicine except they belong to the same school, or that no one can practice the healing art but osteopaths; you have got just as much right to pass a law of that character, ridiculous as it may sound, as to pass an act saying you cannot employ a man or woman to give me medicine when I know what I am taking, and at my own request without the aid of a doctor.

(X). I think any law that attempts to abbreviate the rights of the people in that way is certainly unconstitutional and ought to be held void. Section 9 is certainly unconstitutional from the fact that it is unreasonable, unjust, deprives citizens of this state of their liberty, rights and equalities before the law; besides it is not covered by the titles of the act. I think that is sufficient reason given so the prosecution ought not to proceed with this case. The information will be quashed.

COMMENT.

Paragraphs 1 and 2. Judge Davis contends that the term "practice of medicine" includes the application of medicine and drugs for the purpose of curing, mitigating, or alleviating bodily diseases or ailments, while the "practice of surgery" is limited to manual operations usually performed by surgical instruments or appliances, and in proof of this contention, makes the statement, that the majority of the courts to-day hold to that opinion. He also adduces, as proof of the correctness of his interpretation as above, the fact that the Legislature passed a special law covering the practice of osteopathy, exempting osteopaths from the provisions of the Medical Act. He makes a

further statement, that there is a law requiring osteopaths to pass an examination as surgeons. No such law has ever been passed by the Legislature, or any law that would infer such a proposition. The medical law specifically prohibits osteopaths from practicing medicine and surgery, and confines their practice to osteopathy—in other words, to manipulative processes. The Supreme Courts of the several states (and, in addition, the United States Supreme Court), contrary to Judge Davis' contention, have almost unanimously interpreted the term "practice of medicine" in a broad sense, i. e., not only as prescribing and using drugs and medicines, but further it has been held that the "practice of medicine" involves the holding of one's self out to the public as a "Doctor" or a "Physician," and, in connection therewith, one who cures, or attempts to cure or alleviate human ailments or diseases, whether of mental or physical origin, by advice, or by prescribing or furnishing any method of cure, whether by drugs, instruments, diet, manipulations, appliances, or by any other method, either material or suggestive. The Christian Scientists, who invariably employ the best legal talent, have always seen the necessity in law, where a legislature defined the term "practice of medicine," to insist upon, in an exemption clause, a proviso exempting persons from coming within the provisions of the definition, who confined their ministrations to the sick or afflicted to prayer, and without the use of material remedies, such as massage, drugs, appliances, instruments, etc. This exemption to Christian Scientists in the 1913 Medical Act, clearly indicates the intent of the Legislature, covering the interpretation of sections 7 and 9. This also applies to the exemption of Osteopaths, Optometrists, Chiropractors, the domestic administration of family remedies, and assistance in emergency cases by non-registered practitioners. In the case of *Smith vs. People*, 117 Pacific, 612, it was held that one who professed to be a "healer" and who possessed Divine inspiration, must be deemed to be practicing medicine under the provisions of the statutes of Colorado, even though he used no drugs, instruments or surgical appliances. This furnishes us, therefore, with a very concrete explanation of the reason why the Christian Scientists think it necessary to obtain an exemption under the Medical Act. Our own Supreme Court, as far back as 1888, in the cases of the *People vs. Phippen*, who was charged with practicing Magnetic Healing, upheld the decision of the lower court in its conviction of practicing medicine, notwithstanding the fact that the 1883 Medical Act contained no definition of the "practice of medicine," and that the defendant did not use the title of "Doctor" or "Physician," or use drugs, instruments, or other material remedies, in connection with his treatments. There are, in fact, so many State Supreme Court decisions in opposition to Judge Davis' statement, and which also have been fortified by United States Supreme Court decisions, in which the "practice of medicine" is given the broad interpretation, which he attempts to restrict, that it would take several pages to quote their titles. There is one Michigan case especially, viz., *People vs. Reetz*, in which not only our own Supreme Court, but the United States Supreme Court, is in direct opposition, fundamentally, to Judge Davis' contention.

Paragraphs 3 and 4. Judge Davis states that clause third of section 3, of the 1913 Medical Act, seems to indicate that the board is authorized to issue a license or certificate of registration to any person who desires to practice a system of treatment of human ailments or disease, who does not in such treatment use drugs or medicines, internally or externally, or who does not practice surgery or

midwifery under the provisions of the act, and in his criticism of the above clause, he states,

"I do not find anything in the statute or this amendment that provides such board has any duty imposed upon it to issue any license, whereby applicants could require in any way a performance by a process of law an issuance of a license, even though his examination might warrant it."

The reading of the clause itself completely answers Judge Davis' contention. The clause referred to provides that the board shall issue a license to an applicant who possesses certain preliminary qualifications, provided also that the board shall review and pass upon such qualifications. It also provides specifically, that the applicant shall pass, before the board, an examination on certain fundamental subjects necessary in making a diagnosis of an ailment or disease, the object of such examination being clearly to protect the public from incompetent practitioners. Also, in this clause, certain drugless practitioners heretofore without legal qualifications, upon submission to the board of stated qualifications, and who have been in practice in the state for two years, are exempted from the preliminary requirements and board examination, provided application is made to the board prior to a certain date. Upon compliance with all the above, in which the board's review and judgment are involved, the board is required by law to issue a certificate of registration. If this clause does not impose upon the board a duty, then nowhere in the act is a duty imposed upon the board, covering the issuance of a certificate of registration to graduates of accredited medical colleges who qualify before the board for license to practice in this state.

Paragraph 5. Judge Davis holds that in sections 7 and 9 of the 1913 Medical Act, providing for the punishment of violators of the act and defining the term "practice of medicine," the 1913 amendments had no reference whatsoever to the title of the original act, or to the amendments contained therein, and that the provisions of section 7 of the statute are confusing, conflicting and contradictory, inasmuch so as to render the law incapable of construction or enforcement as to that paragraph. The title of the Medical Act No. 368, of the Public Acts of 1913, reads as follows:

"An act to amend 3, 7, 8 and 9 of Act No. 237, of the Public Acts of 1899, entitled 'An act to provide for the examination, regulation, licensing and registration of physicians and surgeons, and for the punishment of offenders against this act, and to repeal acts and parts of acts in conflict therewith.'"

The quotation of the title itself as above, together with the reading of the amended sections, will be found sufficient to meet Judge Davis' objections. His statement that the provisions of section 7 are confusing, conflicting and contradicting, needs no comment, the reading of the section itself being a sufficient answer. The provisions contained in sections 7 and 9 are similar to the provisions contained in the majority of state medical acts, which have been submitted to and endorsed by Supreme Courts, and which are being administered and enforced in the several states.

Paragraphs 6. As Judge Davis has failed to properly interpret the term "practice of medicine and surgery," (see paragraph I) it is not necessary to make further comments on this paragraph.

Paragraph 7. Judge Davis thinks that a legislature might just as well pass a law to deprive any person

from making a deed or drawing a contract simply because he is not a lawyer, as to say that a person could not render some aid in sickness, although he is not a doctor. This is hardly a parallel case. A person who is not a lawyer and who draws a contract or a deed, does not hold himself out as being qualified under the law as an attorney. In addition, the exemption clause, section 8, of the Medical Act, provides that this act "shall not apply to temporary assistance in cases of emergency, nor to the domestic administration of family remedies." Judge Davis also states in this paragraph, that if a legislature can say that one school of medicine or one system of healing, not shown to be harmful, cannot exist, he thinks it would be in conflict with the spirit of the constitution relating to the rights of individuals, and would be unreasonable and unjust. The Michigan Legislature, however, has not, either in the Medical Acts or in any other act, discriminated against any organized school of practice. As a matter of fact, it has provided that practitioners of all methods of practice may qualify through section 3, of the 1913 Medical Act.

Paragraph 8. Judge Davis is unfortunate in his parallel case in this paragraph. He does not distinguish between selling a medical preparation or drug, from prescribing, together with the sale of such article or articles. A person can go to a drug-store, ask the druggist, or his representative, for a bottle of "Dr. Pierce's Golden Medical Discovery," receive and pay for same, and the party or firm selling this article would not be in violation either of the Medical or the Pharmacy Act. On the other hand, if a person asks a druggist, or his representative, for some remedy to cure an abnormal condition of his blood, and the druggist sells him "Dr. Pierce's Golden Medical Discovery," then such druggist would be in violation of the Medical Act, from the fact that he prescribes (when a person prescribes he must also necessarily make a diagnosis) a remedy for a certain disease or ailment. Judge Davis also states that if his wife is sick, and a nurse undertakes to rub her head or bathe it with a little alcohol, "she is liable under the Medical Act to a \$300 fine unless furnished by a doctor." The Judge does not state whether the doctor furnishes the alcohol or the nurse. He has also neglected to read the exemption clause, section 8, of the Act, which provides as follows:

"This act shall not apply * * * * * to temporary assistance in cases of emergency, nor to the domestic administration of family remedies."

Paragraph 9. Judge Davis in this paragraph suggests that a legislature might do something that it has not yet attempted, and never will attempt to do. It seems useless to discuss a proposition of this kind, which is so entirely foreign to the provisions of the past and present medical acts of this and of other states and countries.

Paragraph 10. Judge Davis should read the decision of the United States Supreme Court in the case of Reetz vs. Michigan, to which Case I have already referred. There are so many Supreme Court decisions in direct opposition to Judge Davis' contention, that I think it unnecessary to further prolong this already too extensive review.

The Prosecuting Attorney of Ionia has carried this case to the Supreme Court and we have not the slightest doubt but what the opinion of Judge Davis will be reversed and the constitutionality of our medical laws be definitely established. With all due respect we feel that Judge

Davis has permitted personal opinion and sentiment to influence his decision which cannot be construed as a true interpretation of the statutes.

FEE SCHEDULE.

At the Flint meeting a committee was appointed to confer with a similar committee from the State Insurance Adjusters Association for the purpose of submitting a fee schedule to cover professional services that are rendered to employees in accordance with the provisions of the so-called Workingmen's Compensation Law. Such a conference was held; a fee schedule was agreed upon and the report of this committee and the fee schedule was published in the November 1913 issue of *The Journal*.

Sufficient time has elapsed and we are enabled to draw several conclusions as to the wisdom of the policy that was pursued and the giving of semi-official endorsement to such a fee schedule.

It must be contended that the adoption of a fixed fee schedule such as was published is unwise. Services rendered to corporations should be governed by individual circumstances just as in private practice and the fee charged should be for the services rendered in each case and not lumped off under a general heading and include every degree or severity of an injury. We are not working by the job or on piece work but expect, and rightly so, a reasonable and fair remuneration for the services we render in every individual instance.

Again, this fee schedule may be classed as "Special Prices" to Insurance Corporations. We are then discriminating. Not one of us would accept \$30.00 for herniotomy from a private patient and be content to add to that charge \$5.00 for anesthetist and assistant and \$1.50 per call for probably ten visits thus making a total of \$55.00 for the entire operation. This is not considered a reasonable fee from a private patient and why should we discriminate between them and insurance corporations? Further, this fee bill has already gotten into the hands of many of the public and they are commencing to dictate operative fees upon the basis of this schedule. Again, in many communities the established charge of \$1.00 per mile for every mile traveled has long been in force and members of the profession far distant to these localities have no right to publish to the people of the community in which the \$1.00 per mile charge exists that fifty cents per mile, one way, is a fair and reasonable price. These are but a few of the objections; several others may well be mentioned.

If a schedule is deemed advisable and essential it should contain a reasonable and fully compensatory minimum charge with a distinct

understanding that such is a minimum charge and does not imply that every individual case shall be subject to that fee. For illustration: Herniotomy \$75.00 and upwards, plus assistance and subsequent treatment.

We sincerely hope that this suggestion will awaken some active discussion on this subject and that some one will bring this matter before the next meeting of our House of Delegates and either secure the rescinding of this schedule or the adoption of one that is more just. There is not a single reason why physicians of Michigan should render their services to insurance corporations at "cut prices" or permit these corporations to dictate to us what we will charge. They demand competent service and care for their risks and in return we should demand and receive just fees.

MACCABEE FREE BEDS—THEIR ABUSE.

As stated in our editorial of last month *The Journal* is interested in eliminating the abuse of these free beds and the imposition on the profession of the state by the hospitals containing such beds and the surgeons who operate upon the patients that are entered, under the guise of charity, upon these free-beds. This service has been permitted to become one that is grossly abused and those who are responsible for it owe it to the public as well as to their fellow practitioners to bring about an abatement of this abuse. It isn't fair; it isn't square; it isn't honest and it is unbecoming a surgeon. The surgeon who operates upon a patient entered upon a Maccabee bed without being personally assured and informed that the patient is actually unable to pay a reasonable fee is robbing a fellow practitioner of a just and legitimate fee. He is engaged in an underhanded practice that is equivalent if not worse than the secret division of fees. We desire to have it distinctly understood that we are not condemning worthy charity—we commend it. We condemn the abuse of charity.

We feel that many people are brazen enough to ask for this charity when if they but made the smallest effort they could pay for all necessary hospitals and surgeon's fees. This free-bed and its lax administration has fostered such abuse and these people are being trained to expect that even though they own their own homes and farms that they are objects of charity and entitled to free service in a hospital by reason of their having paid a few dollars dues to this fraternal lodge. In fact we have evidence at hand wherein a representative of this lodge stated in an open meeting: "Ladies you are entitled to this hospital and surgeon's service. Dr. _____ and Dr. _____"

have personally informed me that they will operate on any case I send them no matter what your financial circumstances may be." This we feel is going one step too far. The more we investigate this free-bed proposition the more are we convinced of its rottenness and the injustice that is being done the entire profession.

We submit the following two of many examples as to the financial position of the patients that are being permitted on Maccabee beds:

"Mrs Bernard Russell, Sand Creek, Mich., was advised by me to have an operation for the removal of an ovarian tumor. She went to Grace Hospital, Detroit. Was operated upon free. Operator unknown to me. Patient's financial circumstances fair. Able to pay \$100 fee plus attendance. The following spring she bought a farm worth \$3,000. I consider I was robbed of this fee for we have excellent facilities at home for operative work." Signed. (Name on application).

"Miss Rose DeLaney, clerk, living with her family. Went to Detroit on May 3, 1914 where she was operated on May 5 on Maccabee bed in Grace Hospital. The financial condition of the family is not distressing. Patient earns \$50 per month. No one dependent upon her. To my best knowledge there is no reason why this girl should not pay a reasonable fee to her local surgeons and physicians." Signed. (Name on application).

These are but two examples, next month we will publish a larger series. We have endeavored to ascertain why these surgeons are so eager to operate upon these cases free of charge. We confess our inability to answer the question. It is beyond our conception why any surgeon will knowingly and willingly operate on a patient free of charge when he knows full well that in doing so he is defrauding and robbing a fellow practitioner and surgeon of a fee to which they are rightly and justly entitled. The high-ways and by-ways contain many a poor unfortunate praying for the opportunity of receiving hospital and surgical treatment so that they may be better able to support and care for themselves and their dependents; and what is more they are worthy of receiving such hospital and surgical care. If a surgeon is looking for material it is not necessary to indulge in a questionable method of obtaining it—if a surgeon is charitably inclined let him dispense his services to those who actually deserve it.

The Journal is open to our members to report further instances wherein these free-beds have been utilized by people of comfortable financial circumstances so that our July editorial will contain accurate numbers and thus reveal the extent of this evil. In that editorial we will also publish the names of the surgeons who are accustomed to operate upon these patients and should they care to we will be glad to publish, at the same time, a statement of their position in this matter.

If you have been defrauded in this manner please refer to our May editorial and supply us with the data requested.

Table Showing the Number of Deaths and the Death Rate Per 100,000 Population From Tuberculosis (All Forms) That Occurred in the City of Grand Rapids During Each of the Years 1900-13:

Years	Population	Deaths	Deaths per 100,000 Population
1900 ...	87,565	93	106.2
1901 ...	89,603	101	112.7
1902 ...	91,642	107	116.8
1903 ...	93,680	133	142.0
1904 ...	95,718	140	146.3
1905 ...	97,756	100	102.3
1906 ...	99,795	98	T. B. San. 98.2 T. B. San.
1907 ...	101,833	129+ 9=138	126.7—135.52
1908 ...	103,871	107+21=128	103.0—123.2
1909 ...	105,909	115+15=130	108.5—122.9
1910 ...	112,571	134+14=148	119.0—131.5
1911 ...	115,380	127+22=149	110.1—129.2
1912 ...	118,189	112+18=130	94.8—110.0
1913 ...	120,997	87+21=108	71.9—89.3

The Grand Rapids Tuberculosis Dispensary is at present located in the Social Welfare Building 55 Barclay Ave., N. E.

For many years the dispensary was conducted by four physicians, chosen by the Board who served one month at a time without remuneration. This, like most volunteer work, was sometimes neglected and unsatisfactory as it frequently happened that patients appeared at the hours designated, to find no doctor present. For the past year the dispensary has been conducted by Dr. Wm. Northrup, who devotes an hour or two, four days in the week including one evening, for which he receives a moderate salary and the dispensary under his administration is well conducted, as the doctor has been well trained for this work in the schools of United States, also he has had the benefit of several years abroad. From all of the above you may gather that the work of the Grand Rapids Tuberculosis Society is producing results that are worth while.

The death rate from tuberculosis in Grand Rapids has decreased 15.8 per cent. since 1900. The rate for 1900, 106.2 is decidedly lower than the average rate for the next four years, so that it makes a very conservative basis of comparison. The rate for 1913, 89.3 is the lowest on record. The figures for the death rate from tuberculosis in the city of Grand Rapids were secured from the State Board of Health at Lansing. In order to make the comparison strictly accurate, deaths of city residents occurring at the city sanatorium, which is outside the city limits, were added to the deaths shown in the table and the rate modified accordingly. The death rate is decidedly lower in Grand Rapids than in the larger and more congested cities like New York and Boston.

Four hundred patients are now being cared for by the four nurses employed by the Anti-Tuberculosis Society. Two-thirds are under the care of the clinic physician; the other one-third have been diagnosed by private physicians.

The clinic is well advertised, through the press, street car signs, and through other welfare agencies. The object is to put an early diagnosis within the reach of all. Many patients visit the clinic office at other than clinic hours for consultation with the

nurse, who is able to investigate conditions and to give instruction and advice to ambulant patients. Clinics are held five days out of the week. One clinic is held in the evening.

In March, 1914, there were 148 visits to the clinic made by patients. Thirty-two of the visitors were new patients. Eighty-five chest examinations were made, and six sputum examinations. Two urinalyses were made, the Wassermann test was given to nine patients, two smears were examined for gonococci, and one examination of feces was made. Thirty-nine prescriptions were written. Nine of the clinic patients were reported to the Board of Health as positive. The work of the clinic for this month is representative of other months.

Compiled Statistics From a Survey of 100 Cases of Tuberculosis in Grand Rapids.

Of these 100 cases, 41 are dead.
Of these 100 cases, 39 are working.
Of these 100 cases, 20 are unable to work.

Diagnosis was made in the incipient stage in 8 cases.

Diagnosis was made in the first stage in 30 cases.

Diagnosis was made in the second stage in 52 cases.

Diagnosis was made in the advanced stage in 10 cases.

How tuberculosis was contracted:

Close confinement and over-work	29
Contact	45
Exposure	12
Dissipation	4
Malnutrition	6
Injury	2
Impure milk	2

9 cases found between the ages of 1 to 15 years.

56 cases found between the ages of 16 to 30 years.

26 cases found between the ages of 31 to 45 years.

9 cases found between the ages of 46 to 60 years.

65 cases were adults. 52 cases were male.
35 cases were children 48 cases were female.

93 cases had indoor occupations (including 12 in school).

7 cases outdoor.

37 cases were found among housewives.

23 cases were found among factory hands.

18 cases were found among office workers.

12 cases were found among school children.

The other ten were scattered among five other occupations.

55 cases were American including 4 Afro-Americans.
17 cases were Polish.

The rest were scattered among six nationalities.

In 29 cases the housing conditions were good.

In 40 cases the housing conditions were fair.

In 31 cases the housing conditions were bad.

38 of the 100 cases were having or had had sanatorium care.

62 were at home.

40 cases were single.

53 were married.

7 were widowed.

Actual known cost of diseases in 100 cases \$128,163
Estimated cost of diseases in 100 cases .. 239,220

Total \$367.383

The estimated cost includes loss in wages, estimated from earning capacity at time taken ill. Cost to city of free sanatorium care. The actual cost includes traveling expenses, doctors and undertakers bills, sanatorium bills, nurses or extra help, milk and eggs, incidentals, etc. (It is safe to say both figures are low).

RALPH H. SPENCER.

Editorial Comments

Are you planning to attend the annual meeting of the American Medical Association in Atlantic City, June 22-26? These meetings are recognized as mile stones in the progress of medicine and surgery and one cannot attend its sessions without returning home a better physician filled with wholesome inspiration to do better and more scientific work. Michigan should be well represented because at this meeting when Dr. Victor C. Vaughan, Sr., will become the active president of the organization.

The Directory of the American Medical Association is off the press and is being delivered to the subscribers. It contains a vast amount of valuable information and merits the cordial support of the entire profession. It has no peer and stands alone in its class. Turn to its advertisement in this issue and we assure every purchaser that he will receive more than full value when he subscribes for this publication.

Have you done your part to induce the non-member to drop the prefix of his title and become a member of your country organization? The directory of the A.M.A. for 1914 credits Michigan with 4,180 physicians. Our membership contains 2453 names. What are you doing to bring into our organization these 1627 men who are unaffiliated? To secure their applications is a duty that you owe to the entire profession. Will you discharge this duty faithfully?

During the past month the newspapers obtaining the service of the Associated Press published an article with the following heading: "Baby's Sight Restored By Unique Operation. Baltimore Physician Graft Cornea of Pig's Eye to Optic." Then follows a description of the operation and the statement that the sight has been perfectly restored and the eye is clear and free from inflammation. The *Providence Medical Journal* investigated this news item and

states that while the operation was performed and the graft remained adherent to the eyeball it became opaque and the operator states that from the appearance of the eye that nothing has been gained in the way of restoring of sight. The point we wish to make is that the Associated Press which should stand for accuracy and truth should employ a medical censor and thus prevent these numerous repetitions of sending out medical news that is wholly and absolutely unreliable and sensational. This is a topic which might well be taken up by the medical society in the district wherein this press bureau maintains its headquarters.

Major F. F. Russell, Medical Corp U. S. A., in an article in the May 2nd issue of the *Journal of the A.M.A.*, imparts interesting statistics which show that the number of cases of typhoid in the U. S. Army has fallen from 3.53 per thousand six years ago to 0.03 in 1913; the death rate has fallen from 0.28 in 1909 to 0.0 since antityphoid inoculations have been employed. One case occurred in 31,038 men serving abroad, and only three altogether in the whole army. No harmful effects whatever were observed. This remarkably successful result of antityphoid vaccination is worthy of more than passing notice. We wonder how many of the profession in Michigan have submitted to an antityphoid inoculation.

Now that the summer season is at hand and many of our families are planning to spend their vacation at the summer resorts from which source much of our typhoid infection occurs, it would be well if we freely submit and advise others to submit to antityphoid inoculations.

Vocational guidance aims to direct the thought and the growth of the pupil along the line of preparation for life's work and its application in our more progressive public schools is being attended with marked success. The plan is intended to give the pupil an opportunity to study the elements of character that give success in life, and by careful self analysis to compare his own opportunity with successful men of the past. He is thus given a purpose in all his educational efforts. This plan of guidance is no longer an experiment and those who have become interested in it for some years past have united in the discussion of their observations so that definite conclusions have been reached and they are in a position to intelligently advise the line along which a pupil should direct his future efforts in order that he may attain the greatest success in life. This guidance on the part of the vocational expert added to the physical inspection of the medical school inspector will result in securing for a pupil for-

tunate enough to attend school where he is the recipient of this educational service placement in life's line of battle wherein he will attain the greatest success and accomplish the largest amount of good. It is indicative of the progress that is being made in providing for the welfare and future prosperity of coming generations. The books and articles upon this subject are interesting and instructive reading. In some instances one cannot but marvel at the results that have been attained.

During the past month we have asked our component societies to secure one advertisement from their vicinity for publication in *The Journal*. This issue contains several such advertisements that have been secured from that source. These advertisements are essential for the maintainance of our publication. Having secured them it now remains for our members to patronize these advertisers for they are not going to continue occupying and paying for space if they do not thus secure the profession's patronage. We are going to ask our readers if they will not make it a special point to peruse our advertising pages and then during the next week drop in on those who have advertised from your community and tell them why you are doing so. Everyone of us must, yes, simply must fulfill this duty if we hope to maintain this advertising patronage. You will receive a bigger and better *Journal* if you do. On the other hand, if you don't then your publication committee will be forced to curtail its expenditures and a smaller publication will result. If you have never helped boost before do it now. Don't assign this duty to your neighbor; you do it and do it now.

In preparing papers that are to be read before county organizations and the several sections of the state society and later published in *The Journal* may we request that you instruct your stenographer to incorporate your name and address as well as note where the paper was read immediately after the title. In addition instruct her to use double spacing for the lines and place all references at the bottom of each page. The observance of these suggestions will help us materially in preparing the copy for publication.

At the conference in the office of the chief executive of Michigan on March 25, attended by Governor Ferris, Attorney General Fellows, Prosecuting Attorney Shepherd of Wayne county, the editor and the business editor of *Detroit Saturday Night*, the chief law officer of the state rendered an opinion on the new medical law, in substance that in order to prove that

the vendor of a fraudulent nostrum was practicing medicine within the meaning of the act, it would be necessary to prove that he engaged in actual diagnosing and prescribing.

The contention was made by *Detroit Saturday Night* then, as it has been since the amended medical act was passed by the legislature of 1913, that the new law provides for the prosecution of the quack without making it necessary for the prosecution to prove diagnosis and prescription, because the law implies an action of misdemeanor to—

Any person who shall practice medicine or surgery in this state, *or* who shall advertise in any form *or* hold himself or herself out to the public as being able to treat, cure or alleviate human ailments or diseases, and who is not the lawful possessor of a certificate of registration or license, etc.

Moreover, as has been stated in these columns repeatedly—

In this act, unless otherwise provided, the term "practice of medicine" shall mean the actual diagnosing, curing *or* relieving, in any degree, *or* professing *or* attempting to diagnose, treat, cure *or* relieve any human disease, ailment, defect *or* complaint, whether of physical or mental origin, by attendance *or* by advice, *or* by prescribing *or* furnishing any drug, medicine, appliance, manipulation *or* method, *or* by any therapeutic agent whatsoever.

To justify his opinion then, that "practice of medicine" means actual diagnosing and prescribing, the attorney general must have contemplated that the medical law would not stand the test of the courts because the broad definition it gave to the "practice of medicine" was broader than the title of the act, which is: "An act to provide for the examination, regulation, licensing and registration of physicians and surgeons, and for the punishment of offenders against this act, and to repeal acts and parts of acts in conflict therewith." Either that, or Mr. Fellows must have arrived at the conclusion that the definition of "practice of medicine" as set down in the act meant only actual diagnosing and prescribing. He must have arrived at the conclusion too, that no matter what language might have been employed in defining the "practice of medicine," so far as the courts are concerned it could mean one thing and one thing only—actual diagnosing and prescribing. —*Detroit Saturday Night*.

The restraint sheet and similar mechanical devices for controlling delirious patient should no longer be tolerated in any hospital. They are relics of the past and their presence serve to testify to our inability to control delirious patients either from entire lack of knowledge and information or carelessness in not ascer-

taining the more modern and scientific methods of control. We admit that there is still much to learn by those in charge of general hospitals as to the proper care and treatment of delirious patients, however, there is no excuse for being unfamiliar with hydrotherapeutic measures and if to this there be added the eliminative treatment one has placed at his command potent and efficient measures whereby the majority of these patients may be controlled and the deliria cleared up. The restraint jacket need but rarely be resorted to. It is generally conceded that restraint, depressant and stimulating drugs lessen a patient's chances for recovery while again baths, packs and elimination greatly increase the percentage of recoveries. The straight-jacket should be placed in the museum of the hospital. At the most only a single shackle of one arm and leg should be employed in restraining these patients.

Lansing, September 10 and 11. Mark it on your calender and do not let anything but illness prevent your attendance. Its going to be an excellent meeting. Accommodations are ample and train connections almost ideal.

Many of our men are going to Europe this summer. European clinics will undergo minute and scrutinizing inspection. Undoubtedly those who are able and fortunate enough to be able to make these trips will bring home with them many valuable suggestions. *The Journal* will be glad to publish their observations. We trust that some of these visitors will be thoughtful enough and remember *The Journal* and thus share their experience with those of us who are not looking forward to such an outing.

Deaths

Dr. J. P. Egglestone.

Dr. John P. Egglestone was born at Ancaster, Ontario, May 16th, 1851 and died at his home in Imlay City, Michigan, February 19th, 1914 after an illness of only two days. His death was due to cardiac complications, resulting in acute edema of the lungs. Dr. Egglestone received his medical education at the Toronto University and settled in Imlay City in 1876 where he continued in active practice until within two days of his death. His sympathetic, genial nature won for him hosts of friends among all classes. He was a leader in Democratic political affairs and took an active part in all matters pertaining to the business interests in Imlay City. He was super-

visor of Imlay township for a number of years, was a member of the City Council at different times and a member of the Board of Education. He was also postmaster of Imlay City during President Cleveland's second administration and was promised the appointment again by President Wilson as Dr. Jones' successor. By the death of our friend a warm hearted, whole souled companion has gone from among us, but his memory will long be cherished by his associates.

At a meeting of the Lapeer County Medical Society held at the Hotel Palmer on April 14th, 1914, the following resolutions were adopted:

Resolved, That we deeply deplore the death of our beloved member, Dr. John P. Egglestone. We recall with pleasure his cheery and happy disposition, his unfailing courtesy and his constant endeavor for the uplift of his profession. We shall miss his genial presence at our meetings and his willingness to bear his full share of responsibility and work. As a token of our respect, we tender to his family our heartfelt sympathy in this the trial of their lives.

Resolved, That a copy of these resolutions be spread upon the records of our Society and sent to the family of our deceased brother.

(Committee.)

GEO. W. JONES.

A. PRICE.

WAIL D. McVICOR.

Imlay City, Mich., April 14th, 1914.

State News Notes

The following is a list of health inspectors for the various congressional districts as appointed by the State Board of Health:

First district—Detroit, Dr. Guy L. Kiefer.

Second district—Counties of Jackson, Washtenaw, Lenawee, Monroe and Wayne, other than the city of Detroit, Dr. J. F. Breakey, Ann Arbor.

Third district—Counties of Kalamazoo, Eaton and Calhoun, Dr. A. H. Rockwell, Kalamazoo. Counties of Hillsdale and Branch, Dr. W. H. Sawyer, Hillsdale.

Fourth district—Counties of Berrien, Cass, St. Joseph and Van Buren, Dr. C. N. Sowers, Benton Harbor. Counties of Barry and Allegan, Dr. J. McGuffin, Hastings.

Fifth district—Dr. Thomas M. Koon, Grand Rapids.

Sixth district—Counties of Ingham and Livingston, Dr. H. S. Bartholomew, Lansing. Counties of Genesee and Oakland, Dr. D. D. Knapp, Flint.

Seventh district—Counties of Macomb, St. Clair and Lapeer, Dr. W. H. Smith, St. Clair.

Counties of Huron, Sanilac and Tuscola, Dr. Charles B. Morden, Bad Axe.

Eighth district—Counties of Shiawassee, Clinton, Ionia and Saginaw, Dr. A. H. Hume, Owosso. Counties of Montcalm and Gratiot, Dr. F. A. Johnson, Greenville.

Ninth district—Counties of Muskegon, Newaygo and Oceana, Dr. George Williams, Muskegon. Counties of Leelanau, Grand Traverse, Wexford and Missaukee, Dr. Julius M. Wilhelm, Traverse City. Counties of Mason, Lake, Manistee and Benzie, Dr. George O. Switzer, Ludington.

Tenth district—Counties of Bay, Midland, Arenac, Gladwin and Iosco, Dr. Edward Goodwin, Bay City. Counties of Ogemaw, Roscommon, Crawford, Alcona and Oscoda, Dr. S. E. Hooper, West Branch. Counties of Mecosta, Osceola, Clare and Isabella, Dr. W. T. Dodge, Big Rapids.

Eleventh district—Counties of Charlevoix, Antrim, Kalkaska and Emmett, Dr. William H. Marshall, Boyne City. Counties of Alpena, Montmorency, Presque Isle, Cheboygan and Otsego, Dr. Clarence H. Williams, Alpena. Counties of Menominee, Delta and Alger, Dr. Earl V. McComb, Menominee.

Twelfth district—Counties of Houghton, Keweenaw, Ontonagon and Gogebic, Dr. E. T. Abrams, Hancock. Counties of Luce, Chippewa, Mackinac and Schoolcraft, Dr. H. N. Perry, Newberry. Counties of Marquette, Dickinson, Baraga and Iron, Dr. T. M. Harkin, Marquette.

Thirteenth district—Dr. Guy L. Keifer, Detroit.

The late Dr. Ernest L. Shurly was eulogized by his colleagues at the unveiling, Sunday afternoon, of a mosaic memorial tablet in the vestibule of the Detroit College of Medicine and Surgery. The tablet was presented to the college by Mrs. Kinzie Bates, of Asheville, N. C., Dr. Shurly's niece. Dr. J. H. Carstens presided at the ceremony. Dr. Eugene Smith, Dr. Frank B. Walker and Dr. David Inglis made addresses. About 100 physicians and members of the faculty attended. The tablet bears the following inscription:

Dr. Ernest Lorenzo Shurly, M.D., scientist, patriot, philanthropist, June 11, 1847—May 10, 1913.

A learned and skilful physician and tireless investigator. Physically, intellectually and morally he had no fear; a man of broad sympathies and high ideals; transparently honest and sincere, a loyal friend; a public spirited citizen; above all, an honorable gentleman. His name will endure in science, but his fairest fame lives in the hearts of thousands whose sufferings he gave relief.

Dr. Henry K. Wampole & Co., Inc. Athletic Association celebrated its second annual opening

on the association's grounds on Saturday, May 2nd. Music, refreshments, a lively base ball game and several field events, in some of which the female members participated, were all highly enjoyable features of the day's entertainment.

The members of the firm and the officers of the association deserve high credit for their activities in fostering athletic pursuits and a social getting-together among the employes.

The following Michigan men appear upon the program of the scientific sections of the American Medical Association that is to hold its meeting in Atlantic City, June 22-26: J. W. Vaughan, Detroit; V. C. Vaughan, Sr., Ann Arbor; Angus McLean, Detroit; Walter R. Parker, Detroit; Burt R. Shurley, Detroit; R. B. Canfield, Ann Arbor; J. T. Case, Battle Creek; Udo J. Wile, Ann Arbor; W. F. Martin, Battle Creek.

The American Proctological Association will hold its sixteenth annual meeting in Atlantic City, June 22-23. The headquarters are at the Hotel Chalfonte and the profession is cordially invited to attend its sessions. Dr. J. A. MacMillan and Dr. L. J. Hirschman, of Detroit are Vice-President and Chairman of the Executive Council, respectively.

Dr. Frank A. Weaver, who has practiced in Charlotte since 1881, died in Oakland, California, on March 6, 1914. The doctor had gone west for his health six months previously and before that time has been a resident of Eaton county for fifty-seven years.

The thirty-ninth annual meeting of the American Academy of Medicine will be held in Atlantic City on June 19 to 22. The headquarters are at the Hotel Dennis. An interesting program has been arranged.

Dr. and Mrs. R. J. Hutchinson, of Grand Rapids, sailed for Europe on May 25th and have arranged their pleasure tour so as to be in London at the opening of the Clinical Congress of Surgeons.

Dr. John B. Jackson, of Kalamazoo, has been appointed as a member of the Board of Health of that city. At the annual meeting of the Board Dr. A. H. Rockwell was re-elected health officer for the ensuing year.

Dr. C. E. Boys, of Kalamazoo, spent the first week in May in Toledo. The doctor has planned to depart for Europe during the latter part of June and will be engaged in postgraduate study for several months.

Dr. and Mrs. W. T. Dodge, of Big Rapids, sail for Europe during the latter part of June and will be abroad for a period of about four months.

Dr. Ralph Apted and Dr. C. H. Johnston, of Grand Rapids, attended the National Association meeting for the Study and Prevention of Tuberculosis that was held in Washington on May 7-8.

Dr. T. H. Ransom, of Bloomingdale, has taken up his residence in Ypsilanti. Dr. R. D. Joldersma, of Grand Rapids, succeeds Dr. Ransom in Bloomingdale.

Dr. R. R. Miller and Miss Audrey Cole, both of Petoskey, were united in marriage on April 20. They will make their home at Harbor Springs.

Dr. D. Ralston and Mrs. Alice Daly, of Cadillac, were married in Grand Rapids, on May 1. They will continue to make their home in Cadillac.

Dr. A. W. Stoops, for the last year supervisor of health of the Jackson Public Schools, has resigned and accepted a position in the United States Navy.

In honor of his fifty years' service in the medical profession, the Wayne County Medical Society tendered a banquet to Dr. Charles Douglas on May 19.

Dr. M. M. Wickware, of Cass City, succeeds the late Dr. Deming as health officer of that village.

Dr. Robert T. Tapert has been appointed a member of the Board of Pension Examiners for the first congressional district.

Dr. M. D. Bird, of Menominee, has been re-appointed county physician for Marquette county.

Dr. F. A. Jones, of Potterville, has sold his practice to Dr. W. M. Taylor and has moved to Lansing.

Dr. O. H. Clark, after six years service on the Board of Health of Kalamazoo, retired from that office on May 1st.

According to announcements the Regents of the University will ask the next legislature for \$100,000 for a new homeopathic medical college.

Dr. and Mrs. Reuben Peterson, of Ann Arbor, will sail for Europe during the last of June and will be abroad until about October first.

Dr. H. S. Bartholomew has been appointed as city physician of Lansing to succeed Dr. Russell.

Dr. H. B. Rees, of Bellevue, has removed to Bedford, Calhoun county.

Dr. G. B. Gesner has been re-elected health officer of Marshall.

County Society News

CALHOUN COUNTY

Tuesday Evening, May 5, 1914—8:00 o'clock.
Chamber of Commerce Rooms, Battle Creek.

1. Some Surgical Aspects of Gall Tract Disease, illustrated with Lantern Slides and Photographic Plates of Specimens, in Colors. Dr. Harry Mortimer Richter, Assistant Professor of Surgery, Northwestern University Medical School, Chicago.

Discussion—Dr. A. C. McCurdy, Dr. R. H. Harris.

2. The Early Diagnosis of Pulmonary Tuberculosis. Dr. J. S. Pritchard, Battle Creek Sanitarium.

Discussion—Dr. E. L. Parmeter, Albion, Dr. Jesse J. Holes, Battle Creek.

If there is anything about the *Bulletin* you would like changed, or if you know any member who does not receive a copy regularly, it is your duty to inform the secretary.

Our society numbers in its membership several who rarely attend the meetings. Many of these are our very busy and successful practitioners. We wonder why it is these men totally ignore our Society meetings. Probably some of them are detained by calls and others may be kept by appointments, but this would seem hardly sufficient excuse to cause such total indifference to our meetings. It may be this has come from lack of information regarding our meetings and the men who address us.

It is hoped that the *Bulletin* will help to overcome these difficulties and will inform our absent members of the good things the Society has in store for them. Surely no one can look through the *Bulletin* and note the standing of the invited guests and the nature of the subjects, and still find sufficient excuse for absenting one's self from the meetings. The privilege of attending any of our meetings should be worth more to any member than what the average physician can earn in a single evening.

The Rogers-Davis Annex to the Nichols Memorial Hospital, was formally opened and a reception tendered the public recently. Not all the rooms are furnished yet, and owing to the non-arrival of some apparatus, the new operating room cannot be used, but it is hoped the entire equipment will be installed in the very near future.

A plan is on foot for the formation of a program bureau associating together the Calhoun, Kalamazoo and Kent County Societies. It is thought by this means that better material may be obtained for our meetings, and that more celebrated speakers may be secured. This will necessitate the meetings of these counties being held on practically the same dates, and our program committee is working with committees from the other Societies, endeavoring to perfect this arrangement. We hope to be able to give a fuller report in the next issue of the *Bulletin*.

A. F. KINGSLEY, SECRETARY.

EATON COUNTY

The regular meeting of the Eaton County Medical Society was held at Charlotte, Thursday, April 30th, afternoon and evening.

Dr. Udo J. Wile of Ann Arbor, held a clinic in dermatology at the Sanitarium. About twenty cases were examined by Dr. Wile, each case representing a different variety of skin disease. Dr. Wile's reputation as a dermatologist brought a number of prominent physicians from adjoining counties. Drs. Hafford, Palmenter and Ramsdell of Albion, and Drs. Bartholomew and Huntley of Lansing, and others were present.

Dr. Richard R. Smith of Grand Rapids gave his lecture, "Certain Physical Defects in Women, Their Significance and Importance." Dr. Smith's lecture was delivered in the evening in the M. E. church to a good audience.

GENESEE COUNTY

On March 24th, at the regular meeting of the Society, the applications of Drs. Goff and Clarke were read and were voted on favorably.

Dr. Udo J. Wile was present at this meeting and conducted a skin clinic.

Dr. Pierce of the Howell Sanatorium, was present at the meeting held on April 14th, 1914. His paper was entitled "The Methods Used in the Treatment of Tuberculosis at the Michigan State Sanatorium." His paper was illustrated by lantern slides.

On April 28th, 1914, Dr. Wm. H. Morley of Detroit read a paper before the Society entitled, "The Care of the Breasts During Pregnancy and the Puerperium." The discussion was opened by Dr. David Jickling of Flint.

Dr. Burnell of Flint read a paper entitled "Vomiting of Pregnancy." The discussion was opened by Dr. H. D. Knapp of Flint.

R. D. SCOTT, SECRETARY.

GRAND TRAVERSE-LEELANAU COUNTY

The Grand Traverse, Leelanau County Medical Society met Tuesday evening, May 5th, at the Traverse City State Hospital, as the guests of the Superintendent Dr. James D. Munson.

Dr. Charles A. Clark of Grawn was elected to membership.

After the business meeting Dr. Munson presented an intensely interesting paper dealing with a slight outbreak of typhoid fever which occurred in the Hospital last fall. The disease was quickly checked by the use of typhoid vaccine, every patient and nurse in the female wards, to which the trouble was confined, being thus safeguarded. The

chief lesson drawn by Dr. Munson in his paper was the importance of the constant systematic use of the sphygmograph to judge the course of the disease in the individual and the effect of the treatment.

After the meeting the society was delightfully entertained by Dr. and Mrs. Munson in their apartments.

During the month of April a banquet was tendered to Dr. O. E. Chase and wife by the Society. This was to express to Dr. Chase the good wishes of the doctors for his success in his new field. Dr. Chase leaves Traverse City to take up practice in Chicago.

JAMES A. J. HALL, SECRETARY.

KALAMAZOO ACADEMY

Business Meeting, April 28, 1914.

1. Recent Investigation of Syphilis and their Influence on our Present Conceptions of that Disease. Dr. Frederick G. Harris, Chicago.

2. The Diagnosis and Treatment of Common Forms of Cardiac Irregularities.—Clinic. Dr. Hugo A. Freund, Detroit.

Business Meeting, May 12, 1914.

1. Report of Cases. Drs. C. E. Boys and J. C. Maxwell.

2. What Information can be Derived from the Test Meal Examination of Patients with Gastric Symptoms—An Analysis of 7000 Consecutive Test Meals.

Discussion led by Drs. B. A. Shepard, O. D. Hudnutt, R. P. Stark.

3. What the Doctor Should Expect from a Nurse. Dr. J. H. Van Ness, Allegan.

Discussion led by Drs. Della P. Pierce, R. E. Balch, W. A. Stone.

C. B. FULKERSON, SECRETARY.

MARQUETTE-ALGER COUNTY MEDICAL SOCIETY

The April meeting was held in Ishpeming, Thursday the 30th. Sixteen members present.

President Larson read an article from the *International Journal of Surgery* by Doctor Alfred C. Jordan of London, England, entitled Intestinal Stasis from the Standpoint of Radiology. He gave an extended criticism of the article, illustrated by comments on cases which had occurred in his practice. Doctor A. W. Hornbogen followed with a great deal of adverse criticism of the assertions of the writer. A general discussion ensued. Committees were appointed to solicit advertisements for the *State Journal*.

T. A. FELCH, SECRETARY.

SHIAWASSEE COUNTY

The Shiawassee County Medical Society met at the Hotel Hauck, Owosso, on the evening of May 5th, 1914.

Dr. J. L. Burkhart, Secretary of the State Board of Health, was present by invitation, and read a paper on "Magnesium Sulphate, Its Commercial and Medical Uses." This old remedy has recently been receiving considerable attention among therapeutists, and Dr. Burkhart's paper was a revelation to many of those present, especially the younger members. The doctor served six years in the Philippines and has had much experience in the treatment of tropical diseases.

He has found magnesium sulphate efficacious in traumatic and specific orchitis. Applied in connection with Churchill's tincture of iodine it is most excellent in ulceration of the os-uteri. He has demonstrated its value personally in facial erysipelas in several separate attacks. The preparation of the solution of the salt should not be left to the patient or his family but should be done by the physician or his druggist. Distilled or clean soft water that has been boiled and allowed to cool to a temperature of about 75 degrees F. should be used, and the solution should be a saturated one. It should be applied usually as hot as can be borne, on gauze compresses, and these are to be kept wet by pouring on more of the solution from time to time.

Many of those present stated that they would soon try out the suggestions and report to Dr. Burkhart as he requested.

Dr. H. L. Arnold gave a report of a recent case of tracheotomy for laryngeal diphtheria which saved the life of a little patient after 30,000 units of anti-toxin and intubation had been used without avail.

After a general discussion of the papers and a sociable good time the society accorded Dr. Burkhart a vote of thanks for his courtesy and adjourned.

W. W. WARD, SECRETARY.

SOUTHWESTERN MICHIGAN TRIOLOGICAL ASSOCIATION

The seventh regular meeting of the Southwestern Michigan Triological Association was held at the Battle Creek Sanitarium Monday evening, May 4th, preceded by a luncheon. Meeting was called to order by the president who called for the reading of the minutes of the last two meetings, which were approved as read. The report of the secretary-treasurer showed a balance in the treasury after paying all expenses of printing, stationery, hectograph and postage, of \$7.88. We have had seven well attended meetings in five different cities during the year.

Upon motion by Dr. Wilbur and supported by Dr. Sleight, the president, Dr. E. J. Bernstein, of Kalamazoo, and the secretary Dr. Wilfrid Haughey, of Battle Creek, were re-elected for the ensuing year. It was decided to hold no more meetings until after the summer vacation, beginning our meetings in October.

For the scientific program, Dr. R. D. Sleight of Battle Creek read a paper on "Iritis" in which he differentiated the different forms of iritis and out-

lined the treatment which he has found most successful. In addition to local treatment, he strongly advises a course of calomel and alphozone to control the intestinal conditions. He advises against the constant use of atropine in long continued cases with adhesions on the ground the constant pull on these adhesions keeps up a considerable irritation. He advises therefore that the pupil be allowed to contract once a day. He reported iridectomy for old chronic iritis with a prompt healing of the condition following operation and a very gratifying result. He reported one case of tubercular iritis greatly benefited by the use of Kock's old tuberculin in increasing doses for a month.

The discussion was participated in by all those present and brought out the rarity of tubercular iritis together with many valuable points in the treatment, and a discussion of salvarsan in the treatment of specific iritis.

There were present from out of town, Drs. Bernstein, Grant and Wilbur of Kalamazoo, also Drs. Farnsworth, Stegman and Cameron as guests. Meeting adjourned.

WILFRID HAUGHEY, SECRETARY.

WAYNE COUNTY

Program.

Monday, April 20—Dinner at Seven.

Joint Meeting—Retail Druggists with Wayne County Medical Society. James W. Helme, State Dairy and Food Commissioner.

The discussion of an antidote for Corrosive Sublimate Poisoning. W. H. Allen, Ph. G.

Monday, April 27—Surgical Section.

Cleft-Palate. With lantern slide demonstration. Dr. Truman W. Brophy.

(Subscription Dinner.)

Monday, May 4—General Meeting.

A Clinical evening.

Presentation of Cases—Case Reports—etc.

Monday, May 11—Medical Section.

Syphilis of the Nervous System. Chas. W. Hitchcock.

Glenard's Disease—(Vicerptosis)—discussed from the internist standpoint. Geo. W. Wagner.

Monday, May 18—General Meeting.

Clinical Study of Respiration. Chas. Franklin Hoover, M.D., Internist, Prof. Internal Medicine, Western Reserve University, Cleveland, Ohio.

Popular Subscription Dinner—6:30.

Election of Officers.

The Discussion of an Antidote for Corrosive Sublimate poisoning.

W. H. Allen

Departemnt of Pharmacy, Detroit Technical Institute.

Until comparatively recently poisoning by means of corrosive sublimate was of very rare occurrence, but owing to its reputed value as an antiseptic, to-

gether with some advertising, it has become a so-called "household remedy" and to-day there are thousands of homes that contain this poison in tablet form, hence there has arisen a grave danger in our midst—this poison in tablet form has been taken in mistake, with suicidal intent, and also has been taken by children through the carelessness of parents leaving the bottle containing it within their reach—there are a number of deaths recorded, so a few remarks may prove interesting.

Egg albumen is recommended in all text-books, and on practically all labels on containers of the aforesaid tablets. It is true that albumen forms with corrosive sublimate an almost insoluble precipitate (See Bottle No. 1) but Bernay's Tablets are not corrosive sublimate alone, they contain citric acid, and it is this citric acid together with the acidity of the gastric juice that plays an important part in preventing the formation of this insoluble compound, or in other words the acidity counteracts the antidote (Bottle No. 2). Food or rather drinks are all slightly acid. Beer was added to Bottle No. 3, Rhine wine to Bottle No. 4, thus leaving the mercury in active form to be absorbed.

Mercuric Sulphide HgS , black in color, is insoluble in hydrochloric acid, nitric acid or in alkaline media. It was once used in medicine but discarded as being inert. Could we but change the corrosive sublimate into this form HgS , it appears to me a step would be gained. Corrosive sublimate when brought into contact with soluble sulphides such as sulphuretted hydrogen water or alkaline sulphides is converted into the black insoluble sulphide.

What have the pharmacists to offer? Calx sulphurata or calcium sulphide is, or should be in every drug store, in powder or tablet form; one grain of it will convert about two grains of corrosive sublimate into the black inert sulphide. As it is not very soluble, it can be dispensed with some water and dilute hydrochloric acid. There are other soluble sulphides such as sodium and potassium, but owing to their caustic properties they should not be dispensed but should be avoided.

Hospitals could prepare and keep a solution of magnesium sulphide; then there are the sulphide waters. Here is some from the well recently sunk at the Wayne Hotel. It is slightly cathartic, owing to its magnesium content, but is potable.

I wrote the *Journal of the American Medical Association* last August regarding the trial of sulphides as a remedy in corrosive sublimate poisoning.

There is another phase to the question: the physical side or colloids versus crystalloids.

Corrosive sublimate is a crystalloid and as such possesses the property of dialysing or passing through animal membranes.

Albumen is a colloid, and as such cannot pass into and through animal membranes, therefore, how can albumen act as an antidote to corrosive sublimate which already has passed to a greater or lesser extent into the substance of the body tissues?

The soluble sulphides are crystalloids, and when in excess according to the laws of physics will follow the corrosive sublimate to its ultimate molecule and change it to the inert sulphide.

These remarks are merely put forth as a suggestion that some investigations be made by your honorable body; my object being to demonstrate in vitro the conditions I have observed.

It might be well to add that the administration of albumin will not interfere with the ultimate action of the sulphides.

Resolution—The society passed the following resolution as reported by the committee with the request that the secretary communicate the same to the family:

“The Wayne County Medical Society desires to place upon its records a tribute of respect to the memory of the late Henry L. Obez, whose sometime brusque exterior concealed a kindly heart, earnest in its convictions. These are the elements which enter into the building of strong characters. He led an industrious and active life to its end.

Our sympathies we respectfully tender to the family which survives him.

J. H. Carstens,
Harold Wilson,
Charles W. Hitchcock,
Committee.

Jas. W. Helme Talks About Things We are Interested In.

At the recent joint meeting of the Detroit Retail Druggists with the Wayne County Medical Society, James W. Helme, Michigan's Dairy and Food Commissioner, addressed the society. After a banquet in his honor, Mr. Helme told the assembled professional men just how hard he had worked to check the fake medicine companies. Mr. Helme believes in exposure and consequently publishes the formula for the different fake cures, telling the people that if they wish to try them a few cents will do it. The pamphlets are sent broadcast and especially to the newspapers, but unfortunately here in Detroit our newspapers, like other public offices in which we are interested, are dominated by politics and greed and refusing to publish these exposures. The *Detroit Times* is the exception, being the Detroit paper that does not carry the fake ads.

Mr. Helme said after the meeting, that in his campaign to clean up Detroit's meat markets and restaurants, he received very doubtful support from the local inspectors—it having seemed, in some instances, that the places inspected had been just warned.

There is one thing about Helme, he talks right out in church—there isn't any misunderstanding him and he is not afraid of his job.

Mr. Helme assures us that Detroit is not to be neglected and that his officers will be back on the job again—and soon.

To the Members of the Band

and others: You are requested not to visit while someone is reading or discussing a paper! Didn't know we had a Medical Band? Oh, yes! You've often heard them rehearsing in different parts of the auditorium; they play the *monotone*—a wind instrument.

Cosmopolitan is the Word.

Stuart Robson, in his play, “The Henrietta,” as “Bertie the Lamb,” said:

“When we fellahs at the club meet, we tell each fellah that he is a devil of a fellah; but he isn't.”

This quotation from Bertie's lines is apropos of the non-cosmopolitan way in which the Society's guests formerly were entertained by some few who had had the privilege of meeting or knowing the visitors previously. They got together, had a little mutual admiration, a cocktail or so, and then came in with their glad rags, a happy smile and a subconscious look; often late, but nevertheless distinguished, and the guest being thus hampered, rarely had the opportunity to meet the regular members, whom he really came to visit. This hasn't happened in months. Now everybody comes; everyone is invited; each member of Wayne County's Medical Society has the satisfaction of knowing that he may attend the dinner given to the Society's guest; that he may wear what clothes he chooses, and if he so desires he may introduce himself—no one is more privileged than he. Truly, this is an open-minded society and there are no more “Berties.”

By the way, why don't you come Monday night? There will be a dinner given for Dr. Hoover, six-thirty, at the Medical Club, and it probably will be the last one of the season. This is election night, too, and there will be plenty of good sport. Speaking of election; a recent acquisition to the society said that if either one of the candidates would make it an issue not to appoint Martin chairman of Program Committee, he would vote for him. Now, that member has a real interest in things and takes his society membership as he should—seriously. If more of the men would only do that! But why wish Martin such hard luck—being chairman and editor is such a desirable job; everyone loves him for publishing facts, and the business men simply chase him, clamoring for advertising space. Still, if there is any doubt in anyone's mind just who to vote for, let us hasten to state that neither of the candidates expect to appoint Martin chairman of anything—and that he is running from, not for office, that he accepted the position under protest and has done his d—est.

R. L. CLARK, SECRETARY.

**DON'T FAIL TO ATTEND
YOUR NEXT MEETING**

Book Reviews

CLINICAL HEMATOLOGY: AN INTRODUCTION TO THE CLINICAL STUDY OF THE SO-CALLED BLOOD DISEASES AND OF ALLIED DISORDERS. By Gordon R. Ward, M.D. Fellow of the Royal Society of Medicine, Medical Society of London, etc. Octavo of 394 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$3.50 net.

This volume is primarily concerned with that clinical study of the so-called blood diseases which have been so much overshadowed by exclusively pathological investigation. It is secondly concerned with the classification of blood diseases, inasmuch as this is a necessary preliminary to any understanding of their nature. It may well be termed Bedside Hematology. A very practical and valuable book for every physician giving as it does that information which every physician can apply in his daily work. It is one of the most practical and useful volumes of the year. It merits and receives our frank commendation.

PSYCHANALYSIS; ITS THEORIES AND PRACTICAL APPLICATION. By A. A. Brill, Ph.B., M.D. Chief of Clinic of Psychiatry and Clinical Assistant in Neurology, Columbia University Medical School; Chief of the Neurological Department of the Bronx Hospital and Dispensary. Second edition, thoroughly revised. Octavo of 393 pages. Philadelphia and London W. B. Saunders Company, 1914. Cloth, \$3.00 net.

It is scarcely a year ago when we first reviewed this work in these columns and now we are presented with the second edition, and its early appearance attests to the value of this publication. To the original work there is added new illustrative material, an analysis of dreams, and interesting case reports with a glossary of psychanalytic and psychosexual terms.

As stated in our former review, the author has quoted liberally from Freud, and the research development since the appearance of the first edition have not created the necessity of altering these, in fact, the new material has confirmed them.

The practitioners will be able to obtain a practical and comprehensive working idea from the reading of this work and thus be in a position to deal much more intelligently with his patient. It is a valuable and commendable publication.

THE CLINICS OF JOHN B. MURPHY, M.D., at Mercy Hospital, Chicago. Volume III, Number II. Octavo of 213 pages 55 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Published Bi-Monthly. Price per year: Paper, \$8.00. Cloth, \$12.00.

This number abounds in interesting cases with Dr. Murphy's comments thereon. In addition it con-

tains the first of a series of Clinical Talks on Surgical and General Diagnosis. The subscriber to this work will soon be in possession of an accurate reference work containing the author's methods and means of reaching a diagnosis, for we understand that these talks are to be continued throughout subsequent issues. Valuable as these clinics have been in former issues they now become doubly so, not only to the surgeon but to the general practitioner as well.

They are essential reading for every physician. One cannot well afford to be without them.

MODERN SURGERY: GENERAL AND OPERATIVE. By J. Chalmers DaCosta, M.D., Samuel D. Gross Professor of Surgery, Jefferson Medical College, Philadelphia, Pa. Seventh Edition, Revised, Enlarged and Reset. Octavo of 1515 pages, with 1085 illustrations, some of them in colors. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$6.00 net; Half Morocco, \$7.50 net.

Revised, enlarged and reset this work, which has long been recognized as an authority, a reference book and a "working" manual, is presented to the profession in its seventh edition. The author has attained the happy medium between undue length and also undue brevity with the result that within its covers the reader will be able to obtain well digested facts on each subject and not merely a cataloging of headings. It contains all that is good in modern surgery; all that has been proven and not found wanting. There is nothing to criticise; everything to commend.

It is for the practitioner who desires to know how a master maker makes his diagnosis and then applies his treatment, to have in short a consultation with Dr. DaCosta—the volume is invaluable and well merits a prominent place in every physician's library.

INFANT FEEDING. By Clifford G. Grulee, A.M., M.D., Assistant Professor of Pediatrics at Rush Medical College, Chief of Pediatric Staff, Cook County Hospital. Second Edition, Thoroughly Revised. Octavo of 314 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$3.00 net.

In preparing this work the author has accomplished two things: to bring our knowledge of the scientific processes which underlie infant feeding up to the present and, second, to put forth the practical application of these principles in such a way that they can be grasped by one no more familiar with the subject than the practicing physician. Infant feeding has long been a subject of discussion and even to-day men of authority are at a variance, and a satisfactory working basis has not been attained. It is essential, however, that we be acquainted with the scientific factors involved, and having such a working knowledge we shall be able

to meet the demands in each given case most satisfactorily. This knowledge, up to date, may be secured from this work.

For the practitioner who wishes a reliable guide in Infant Feeding there are few books that can be more heartily recommended. Its teachings are sound throughout and up to date.

SURGERY; ITS PRINCIPLES AND PRACTICE. FOR STUDENTS AND PRACTITIONERS. By Astley Paston Cooper Ashhurst, A.B., M.D., F.A.C.S., Instructor in Surgery in the University of Pennsylvania; Associate Surgeon to the Episcopal Hospital; Assistant Surgeon to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases. Handsome large octavo, 1141 pages, with 7 colored plates and 1032 illustrations, mostly original, in the text. Cloth, \$6.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

This new text-book of Surgery is without question one of the most important publication of the year in any branch of medical science. It has been designed and prepared by one of the foremost surgeons and teachers of the present time. It represents the most modern thought and practice, and reflects the unusual qualification, literary as well as professional, of its talented author. Dr. Ashhurst has presented clear and accurate statements of facts, and has placed emphasis on the underlying principles; he has given particular attention to pathogenesis, diagnosis and indications for treatment, and has completed the whole with adequate descriptions of operations. A remarkable feature of the work is the magnificent series of 1,032 illustrations, which are almost entirely original, and have been prepared especially for it. Each one has been chosen for the information it conveys. The sections of Fractures and Dislocations and on Diseases of the Bones and Joints will be appreciated by those familiar with the author's excellent monograph on "Fractures of the Elbow." Genito-Urinary Surgery, Gynecology and Orthopedics are discussed at sufficient length to meet the requirements of general surgeons.

This work will be found useful in furnishing the foundation on which a knowledge of surgery may be built. As such it supplies a broad and deep ground work for him who contemplates devoting himself to surgery.

This work gives the student clear and accurate statements of facts such as he requires. For the practitioner it is a most useful reference work. It is a work that will be found of value to every medical man and as such it is accorded our approval and endorsement.

A HISTORY OF LARYNGOLOGY AND RHINOLOGY. By Jonathan Wright, M.D., Director of the Department of Laboratories, New York Post-Graduate Medical School and Hospital. Second Edition, Revised and Enlarged. Octavo, 357 pages, illus-

trated. Cloth, \$4.00, net. Lea & Febiger, Philadelphia and New York, 1914.

This work belongs to the type of medical book which is but rarely published, and then only in limited editions, which appeals to the physician for its literary and historic value rather than for its practical usefulness in his everyday professional life. It is a book which will afford him pleasure and recreation in his leisure hours, and from which, nevertheless, he will obtain much that will be of value to him in his daily routine. It will broaden his point of view, and give him a better perspective, not only of the specialty in which he may be engaged, but also of all branches of medicine, to see how the particular department reviewed herein has grown from crude beginnings to one of the most highly perfected of all specialties. The author is not only a gentleman of eminence in the medical world, but also a litterateur and a historian, and he has portrayed his subject in an interesting and charming style. Beginning with Egyptian Medicine, and continuing until the advent of modern procedures, Dr. Wright has given the reader a story full of entertainment and historic interest.

This second edition is bound to be accorded more favorable comment than was given the first edition. Every specialist and practitioner will obtain much of profit and instruction from the author's labors.

Miscellany

Urodonal, A French Proprietary.—Urodonal, which has been widely exploited in France, is said to contain lysidin, sidonal and hexame—thylanamin along with other things and to have a uric acid solvent power thirty-seven times greater than that of lithia. As Urodonal is not to be found in New and Non-official Remedies, as the uric acid solvent powers of the three chief constituents are generally considered to be slight and as the solvent powers of lithium salts for uric acid are admitted to be practically nil, the extravagant claims for the new shotgun proprietary do not inspire confidence (*Jour. Mo. State Med. Assn.*, April, 1914).

Hyperol—Hyperol is exploited by the Purdue Frederick Company as "A Utero-Ovarian Corrective and Tonic" and is asserted to be "Indicated in all functional diseases of women." It is claimed to contain hydrastin, aloin, iron salts, apiol and ergotin. A report of the Council on Pharmacy and Chemistry announces that Hyperol conflicts with the following rules of the Council: Rule 4, in that statements on the label and in the circular enclosed with the trade package advertise it to the public in the treatment of diseases; Rule 6, in that exaggerated and unwarranted claims are made for its therapeutic qualities; Rule 8, in that the name of this pharmaceutical mixture fails to disclose the potent constituents, and Rule 10, in that it is unscientific. The

mixture is as unscientific as it is unnecessary. It cannot be adapted to any individual case; When ergot is indicated, apiol would naturally be contra-indicated; if aloes is appropriate, hydrastis may defeat the object sought. It is unnecessary because no intelligent physician would prescribe such a combination of drugs in any given case (*Jour. A.M.A.*, April 18, 1914, p. 1271).

Friedmann Vaccine.—Referring to the exploitation of Friedmann's vaccine by ex-mayor Rose of Milwaukee, the *Southern Medical Journal* suggests that "Mr. Rose will be remembered by Alabama physicians as the apostle from the city made famous by certain brews of beer who a few years ago came into our state to instruct from the public platform our people regarding the health-giving properties of alcoholic beverages. He is probably prompted by the same philanthropic impulses when he attempts to inform physicians and the public of the 'miraculous results' of the serum that made Friedmann famous as well as rich" (*Jour. A.M.A.*, April 18, 1914, p. 1272).

Pearl La Sage Complexion Treatment.—Pearl La Sage, Chicago, sells a beauty treatment by mail which it is claimed "heals, soothes, cleanses, softens and beautifies the skin" and removes all kinds of blemishes. The treatment consists of tablets, capsules and laxative pills. The contents of the capsules and the tablets are to be dissolved in water and splashed on the face, one at night and the other in the morning. Examination in the A.M.A. Chemical Laboratory showed the capsules and the tablets to contain as essential constituents, phenolphthalein, borax and sodium carbonate. The pills appeared to contain cascara or some similar drug and a little alkaloid, probably strychnine (*Jour. A.M.A.*, April 25, 1914, p. 1345).

Friedmann and the Newspapers.—The officers of the Society of German Sanatorium Physicians protest against New York newspaper accounts which made it appear that their society had feasted Friedmann and endorsed his cure. Those who, incidental to a meeting of the society, inspected the Friedmann Institute were of the opinion that the cases under observation had been badly observed and as a whole could not be considered as successes or cures (*Jour. A.M.A.*, April 18, 1914, p. 1273).

The Hypophosphite Fallacy.—The hypophosphites were introduced by Dr. Churchill as a specific remedy for consumption on the theory, since proven incorrect, that phthisis was due to a lack of oxygen in the tissues. On the supposition that hypophosphites were oxidized in the body, he presumed them to be a source of energy for the nervous system. Not only does the evidence indicate that in consumption there is an increase of oxidation, but there is no evidence that phosphorus acts as an energizer of oxidation and further, there is no proof

that the hypophosphites enter into general metabolism. Not only is there no evidence of the utility of hypophosphites but it has long ago been demonstrated that they are excreted unchanged. While the discredited hypophosphite theory is no longer contained in text-books, the fallacy is kept alive by proprietary interests, and physicians who depend for their therapeutics on the "literature" of proprietary concerns, still employ the hypophosphites (*Jour. A.M.A.*, April 25, 1914, p. 1346).

Duket's Consumption Cure.—The backers of the Chicago exploitation of the Duket consumption "cure" now admit that the treatment is without merit, that it is vastly inferior to approved systems of treatment of pulmonary tuberculosis and that the treatment may lead to albuminuria. While the "cure" was given wide publicity through the newspapers, the public has not been informed of the unfavorable findings (*Jour. A.M.A.*, April 25, 1914, p. 1347).

Radioactive Waters.—Waters whose radioactivity is due, not to radium itself, but to radium emanations will quickly lose their activity. As most radioactive waters do owe their activity to radium emanations, they must be used at the springs (*Jour. A.M.A.*, April 25, 1914, p. 1348).

The Truth About Medicines

Hypo-QUINIDOL.—While no definite statements appear to be contained in the advertising matter sent out by R. W. Gardner, certain statements suggest that Hypo-Quinidol might be some sort of a quinin hypophosphite preparation. But if this is true, its action would be the same as other salts of quinin and the extravagant claims made could not be substantiated. Hypo-Quinidol is a preparation the composition of which is secret and for which highly improbable claims are made (*Jour. A. M. A.*, Jan. 10, 1914, p. 148).

THE RICHIE MORPHIN CURE.—The Richie Company was discussed in Collier's Great American Fraud series as one of the concerns which under the guise of mail-order "cures" for the morphin habit fosters the slavery of the drug habit by substituting for the morphin addiction an addiction to their villainous mixture of opiates. More recently shipments of "Richie "cure" were seized by the Federal authorities and found on analysis to contain from 7.21 grains to 15.95 grains of morphin sulphate to the fluid ounce (*Jour. A. M. A.*, Jan. 10, 1914, p. 144).

CASE RHEUMATIC SPECIFIC.—This is a "patent medicine" sold under the inferential claim that it does not contain salicylate. A package bearing the statement that this medicine "Cures where all else fails, rheumatism, muscular, sciatica, lumbago, gout, neuralgia, neuritis" contained one box of "Rheumatic and Gout Pills" and one of "Bilious and Liver Tablets." Examination in the A. M. A. Chemical Laboratory showed the first to contain sodium salicylate with some magnesium oxid and licorice root while the second was found to contain aloin or some preparation of aloes as the purgative constituent (*Jour. A. M. A.*, Jan. 31, 1914, p. 394).

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No. 7

Original Articles

HOURL-GLASS STOMACH AND DUODENUM.*

GEORGE B. EUSTERMAN, M.D.

MAYO CLINIC, ROCHESTER, MINNESOTA.

Hour-glass deformity of the stomach occurs with sufficient infrequency to render it always of interest to the clinician. In our experience the condition has occurred in 6 per cent. of the cases of chronic gastric ulcers and in one-half per cent. of the cases of duodenal ulcers. Although the literature on the former is extensive and case reports numerous, only a few of the latter cases have come under observation. In the material herewith presented, only the organic permanent types of cases are considered and classified according as to whether the condition followed chronic benign ulcer, carcinoma or lues.

ETIOLOGY.

The great majority of hour-glass stomachs are largely the result of an intrinsic ulcerative process. In a few instances the deformity results from post-operative adhesions following excision of a gastric ulcer, compression by an extrinsic tumor, congenital bands or fistulae. The ingestion of corrosives, spasm of the gastric musculature and tight lacing are minor causative factors in the production of hour-glass stomach. At an earlier period the congenital origin of most cases had many warm supporters. Many theories were held, all perhaps based on insufficient evidence. Even Sandifort's more recent classical report of an hour-glass stomach in a fetus, which on first evidence seemed strongly to support a congenital origin, is inconclusive, since there is undoubtedly such a condition as fetal ulcer, shown in the report of a case by Godhart (1) in an infant which died thirty hours after birth of hemorrhage from a gastric ulcer. It would be better to speak of the anomaly as intra- or extra-uterine acquired hour-glass stomach. Veyrassat's (2) exhaustive

review of hour-glass stomach deals instructively with this phase of the subject. In the opinion of surgeons of the widest experience the theory of a purely congenital origin of hour-glass stomach is strongly disputed. They hold that if the carefully preserved specimens of the museums were properly incised and examined, the provocative ulcer would be revealed in most cases.



Fig. 1. Case 23008. Ulcer lesser curvature, pars media, which has perforated into liver, forming a small pocket and hour-glass stomach. There was a large residue in the stomach and a small one in the pocket at the end of six hours.

SYMPTOMATOLOGY.

There is no characteristic symptom-complex. The symptoms are those of peptic ulcer plus obstruction, chief among which are epigastric pain occurring some time after taking food, vomiting, and loss of weight. In a few instances in which the upper loculus was very small and the constriction situated high on the lesser curvature the symptoms have simulated those of spasm or obstruction at the cardiac orifice. Variations in the clinical picture, as in ulcer or carcinoma of the stomach, depend upon the lo-

*Read before the Kent County Medical Society, Grand Rapids, April 8, 1914.

cation and extent of the lesion and upon the presence or absence and degree of complicating factors such as perforation, stenosis, perigastric adhesions and coincident disease in other organs.



Fig. II. Case 24631. Perforated ulcer on lesser curvature. Pocket formation in liver. Hour-glass stomach; constricted area rough and irregular and about two and one-half or three inches in length. There was a six-hour residue in the pocket and lower segment.

DIAGNOSIS.

The diagnosis must be made on the history, laboratory tests, inflation of the stomach, and by the Roentgen ray. Occasionally the passage of the stomach tube gives the first clue to the condition present, in those cases in which obstruction is encountered after passing beyond the cardia. This suspicion is increased if retention products are recovered or if the larger portion of lavage water fails to return. The results of test-meal analyses show no characteristic alteration in the chemistry of the stomach—the acid values may be high, low, normal or an acidity plus lactic acid be present.

Characteristic signs which may singly or in association be present are:

1. Disappearance of fluid introduced through the stomach-tube "as though it had flowed through a hole." (Wölfler).
2. After cleansing of the stomach by lavage a sudden gush of putrid, sour, ill-digested food, etc. (Wölfler).
3. "Paradoxical dilatation," succussion splash in the pyloric cavity after siphonage of the cardiac loculus. (Jaworski).
4. Distension of the cardiac loculus, its gradual subsidence and concomitantly the distension of the pyloric loculus (Von Eiselsberg).

5. During this period a gurgling forcing sound heard over or near the middle of the stomach. (Von Eiselsberg).

6. On distension with carbon dioxide a large increase, even to a doubling, in the thoracic area, tympanitic on percussion and with a slight distension, clearly demarcated, of the pyloric loculus. (Moynihan); and

7. Rarely a sulcus may be seen on inflating with carbon dioxide (Schmidt-Monard).

ROENTGEN EXAMINATION.

With the development and increasing accuracy in the interpretation of the findings of the fluoroscopic screen and radiographic bismuth plate and their routine application, the above methods are only of historical interest. These special tests, however, may be tried as some authorities have been able thus to diagnose as high as 50 per cent. of their hour-glass cases. But the Roentgen examination is indispensable and in our experience has invariably given the first definite evidence of the condition present.

To the clinician and especially to the surgeon, the term "hour-glass" signifies the biloculation of the stomach by an organic constriction. Carman (3) states that to the Roentgenologist the word has less specific meaning, being applied not only to organic but also to functional conditions, thus including every stomach which has a bilocular appearance. The functional or spasmodic hour-glass, due to a reflex spasm of the musculature, may exactly simulate the hour-glass of ulcer. As a rule, such a spasmodic incisura and apparent organic hour-glass subsides

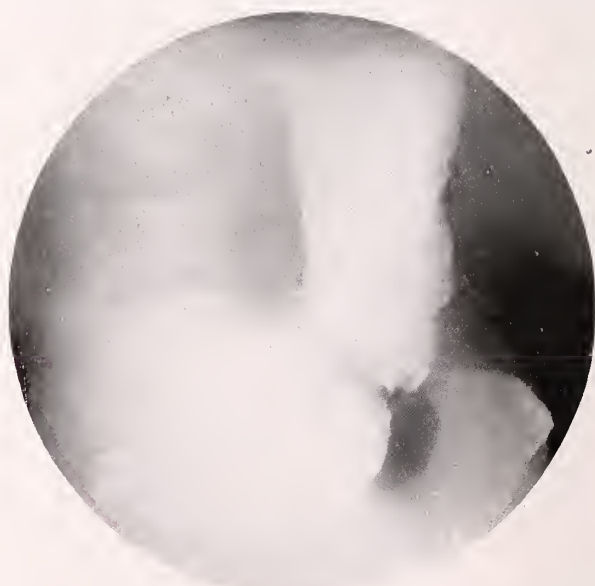


Fig. III. Case 94543. Ulcer lesser curvature at incisura angularis. Contact ulcer on posterior wall, adherent to liver and pancreas. In the directly antero-posterior view no hour-glass is seen, while in the extremely oblique view a broad, rather deep wave-like irregular incisura (hour-glass) is visible. There was no six-hour residue.

under the influence of belladonna. "On the screen and plate such a stomach, whether due to an incisura or the result of adhesions and

contractions from a perforating ulcer, shows definite division into two chambers with a short canal joining them, the canal being usually near the lesser curvature, thus giving the stomach a B-shape. However, one or two cases have been seen with a pocket in which the canal join-

malignancy both portions fill equally. "The hour-glass form caused by the presence of a tumor extrinsic to the stomach is usually determinable by the smoothness and regularity of the projecting mass and by its behavior to palpation shifting during the screen examination" (3).

STATISTICAL REVIEW (1907-1913 INCLUSIVE).

In our series there were thirty-seven cases of hour-glass stomach the result of benign gastric ulcers; of these, twenty-four were females, and thirteen males. The ages ranged from twenty-five to seventy years. The average age was forty-five years; average duration of symptoms, nine years. Twenty-two, or 65 per cent, were operated on during the third and fourth decades of life. The symptom-complex was typical of peptic ulcer in 80 per cent. A small percentage of error in diagnosis was shown in the cases which perforated and simulated cholelithiasis, and in the markedly obstructed cases, with tumor, cachexia, and achlorhydria which simulated gastric carcinoma. Pain, variable in degree, was a symptom common to all the cases. In the cases which perforated (16), it was acute and often prostrating; in fifteen instances it was definitely localized to the left epigastrium. General epigastric and posterior radiation was common. Tenderness was present at some time in all the cases, and in 70 per cent. while under observation. In twenty-seven (65 per cent.) there was a definite onset of pain from one-half to four hours after taking food, in thirteen of these the onset was from one-half to one and



Fig. IV. Case 100277. Spasmotic hour-glass stomach which persisted in spite of palpation. No anti-spasmodic given. X-Ray diagnosis: "Probable nicer, high on lesser curvature." At operation, an ulcer of the duodenum the size of the head of a lead pencil was found on the anterior wall just below pylorus. The case illustrates the danger of over-confidence and the necessity of taking every precaution to eliminate spasmotic conditions simulating organic lesions.

ing the loculi of the hour-glass was long and rather centrally placed."

"The organic hour-glass of carcinoma is occasioned by the projection of a tumor-mass into the gastric lumen or by infiltration and contraction as in scirrhus carcinoma. The hour-glass of carcinoma usually shows characteristic irregular filling defects. The canal uniting the chambers is generally longer than that seen with ulcer, and often has a median situation in the gastric axis, resulting in an X-shape."

Kretschmer (4) emphasizes the following points bearing on the differential diagnostic characteristics of malignant and benign hour-glass:

1. That in malignancy the division between the loculi consists of a horizontal and a vertical band, while in the benign it is a more or less horizontal constriction.

2. It is characteristic in hour-glass stomach that the lower loculus is filled by the upper emptying into it, whereas in



Fig. V. Case 24551. Organic hour-glass stomach with constriction high up. Slight obstruction at cardia. No residue after six hours. Note that constriction is concentric, which is quite characteristic of carcinoma, resulting in an X-shape as contrasted with the eccentric B-shaped hour-glass of ulcer. Carcinoma found upon exploration.

one-half hours after food. In the remaining eleven, the pain was noted two to four hours

after meals; in seven not stated; and in five, irregular. Relief of pain by food, soda or vomiting, or by combination of these measures, was noted in 95 per cent. Hyperacidity and vomiting were present in 70 per cent. of the cases; hematemesis, single or repeated in thirteen (35 per cent.); associated melena in nine, (24 per cent.) There was definite gross obstruction after twelve hours, and altered blood in the gastric extract was present in 35 per cent. of the cases. The average total acidity was 47 per cent., free hydrochloric acid 36 per cent., acid salts 12 per cent., and achlorhydria in seven cases.

PATHOLOGY.

Calloused saddle ulcers of the lesser curvature, often extensive and adherent to the liver, with variable degrees of inflammation and constriction, was noted in (57 per cent.) of the cases. The site of the ulcer in the remainder was as follows: Pre-pyloric and lesser curvature, four; posterior wall and lesser curvature, six; fundus and greater curvature, two; posterior wall, four. It will be noted that the lesser curvature, in which over two-thirds of

ulcer was marked in three instances. The ulcers of the posterior wall were all of the perforating or penetrating type involving the pancreas. In these the posterior wall was shortened, the greater curvature was drawn up into the mass and the hour-glass deformity resulted.

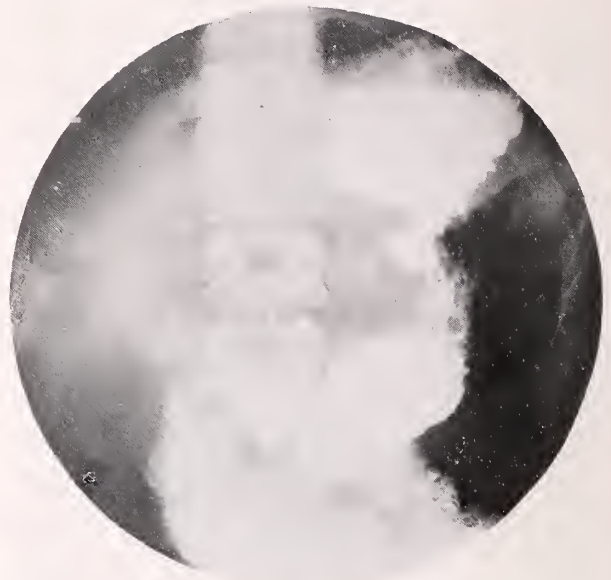


Fig. VII. Case 97022. Large ulcer on posterior wall of stomach with deep crater size of a twenty-five-cent piece. High hour-glass. Small residue at the end of six hours.



Fig. VI. Case 24352. Ulcer on posterior wall near greater curvature. Hour-glass stomach. Small residue after six hours.

the gastric ulcers are situated, was the site of involvement in thirty-one out of thirty-seven cases, (84 per cent.) Chronic or subacute perforation was present in sixteen with resulting peri-gastric adhesions and implication of the liver, or pancreas, or both. The ulceration was frequently extensive involving all the coats. Crater formation, or sloughing of a calloused

The favorite site of constriction in our cases was at the pars cardiaca or media; the upper loculus was usually the smaller owing to the high situation or extent of the ulcer. There was coincident ulcer of the duodenum with pyloric stenosis in seven cases.

In an earlier surgical experience with six cases, Moynihan (5) especially noted: (1) Perigastric adhesions, the result of a perforating ulcer with the formation of a thick cord running downward from the liver and sharply pressing in the anterior wall-space of the stomach; (2) ulcer with local perforation and anchoring to the abdominal wall; (3) circular ulcer with subsequent cicatricial contraction and induration. This condition may follow chronic simple ulcer, but the hour-glass would be incomplete.

Spannaus (6) reported thirty-four cases of hour-glass stomach. In this series an ulcer located on the lesser curvature and posterior wall was the most common etiological factor. In the greater number the constriction was in the form of a ring, the stomach being freely movable and without clinical symptoms of ulcer. In the lesser number the ulcer was seen as a flat, hard area about the size of a dollar and the stomach was adherent to the posterior wall and the pancreas. At times the ulcer represented a tumor formation.

MALIGNANT HOUR-GLASS.

There were eight of these cases noted in our clinic within the past seven years; seven males and one female. The average age was 53.5



Fig. VIII. Case 19843. Ulcer on posterior wall six inches above pylorus, many adhesions. Hour-glass stomach. Crater of ulcer size of a nickel. The lower pouch comprises about two-thirds of the stomach; the upper pouch about one-third. Large residue after six hours.

years, average duration of symptoms two years. Obstruction was present in one-half the cases, altered blood and Oppler-Boas bacilli in the gastric extract in all. The acid values might have been misleading had it not been for the advanced age of the patient, the short duration of definite symptoms and the marked cachexia or tumor or both. Achlorhydria was noted three times, the average total acidity was twenty-five, free hydrochloric acid thirteen, and combined acids twelve. A huge carcinomatous ulcer was the causative lesion in five cases and a malignant tumor in three. All were situated in the lesser curvature and in three the posterior wall was involved.

LEUTIC HOUR-GLASS.

In this group there were three cases, two males and one female, ages twenty-four, twenty-six and forty-one, respectively. A history of definite infection was obtainable in all. Active specific treatment had been previously carried out without amelioration of the gastric disturbance. The average duration of symptoms was three and two-thirds years. Obstruction obtained in one case. The acid values were similar

to those of gastric cancer. The findings are briefly:

CASE I. Hour-glass constriction at the juncture of the fundus and antrum. Large irregular ulceration on anterior wall. Several ulcerations and thickening along greater and lesser curvatures to esophageal opening. The ulcers were multiple. Operation: gastropasty followed by gastrostomy.

CASE II. The stomach small and adherent. Strictured at three points; cardia, antrum and pylorus. Liver and spleen considerably enlarged, soft and mottled. Numerous adhesions about the liver. Operation: dilatation of the esophagus, gastro-gastrotomy for median and pyloroplasty for distal stricture.

CASE III. Ruffled stomach; multiple ulcers in the posterior wall extending to cardia. Peculiar appearance of pyloric end and body of the stomach. Stomach narrowed to the size of an adult wrist. Operation: Witzel jejunostomy.

MISCELLANEOUS.

One case, a female of twenty-nine, who had had symptoms for more than twelve years, was the result of a congenital fistula with a lumen the size of a lead pencil running as a band from the lesser curvature two inches above the pylorus to the lesser curvature two inches below the cardiac orifice. The channel was excised and both ends closed by a purse-string suture. In another case, the hour-glass constriction was the result of post-operative adhesions. There had been two operations elsewhere on the gall-bladder and stomach. Operation: Undoing the anterior gastroenterostomy and separation of adhesions.

HOUR-GLASS DUODENUM.

There were eight cases in this series; six males and two females. With two exceptions, the duration of symptoms ranged from ten to thirty-eight. The typical symptom-complex was present in all the cases. With one exception, pain appeared two to four hours after meals and



Fig. IX. Hour-glass duodenum.

was regularly relieved by food, soda or lavage. Hematemesis and melena were noted in three instances. Marked pyloric obstruction was present in all but one case. The acid values were

high. The pre-operative diagnosis in seven of the eight cases was that of duodenal ulcer with pyloric obstruction.

PATHOLOGY.

The ulcers in these cases are large, thick and calloused, and sometimes with crater formation. They may be extensive and usually implicate the pylorus. The posterior or anterior superior walls are invariably involved, the ulcer extending downward from the upper aspect of the pylorus on the superior wall of the duodenum producing a pouching like an hour-glass. This pouch may be one and one-half to two inches in extent. Extensive contraction of the upper surface just below the pylorus and again two inches below this had in one instance formed a cicatricial canal one and one-half inches in length with very marked obstruction, forming an hour-glass duodenum for two inches. In one instance the ulcer apparently began at the pylorus. The duodenal ulcer was large and thick. The cicatrix continued on the superior surface, encircling the duodenum at two different points one inch apart thus producing the hour-glass type. The stomach was markedly hypertrophied or dilated owing to the obstruction.



Fig. X. Hour-glass stomach. Dotted lines show proposed resection.

TREATMENT.

The treatment is essentially surgical, otherwise the prognosis will be unfavorable. In a large majority of cases of hour-glass contractions of the stomach and of the duodenum, continuous symptoms of a marked obstructive and painful nature had become marked for a number of months prior to the operation and the progressive decline made surgical interference imperative and welcome to the patient. The nature of the operation depends on the existing condition. The versatility of the operator with respect to gastric surgery is best exemplified in these types of cases. In cases of hour-glass stomach, gastrogastrostomy is a desirable operation, although resection in con-

tinuity, when it can be done, has given good results. In some cases, however, gastrojejunostomy fulfills the indications admirably (7).

In our first group (37 cases), the operations were as follows: Gastrogastrostomy ten, pos-



Fig. XI. Result of resection of the obstructing ulcer in hour-glass stomach.

terior gastroenterostomy eight, resection in continuity two; partial resection one, Witzel jejunostomy one, exploration one, anterior gastroenterostomy one, Hartman gastropasty five, combined operations: gastrogastrostomy and gastroenterostomy three, gastropasty with excision two, anterior gastroenterostomy with excision one, gastropasty and gastroenterostomy two. In the malignant hour-glass cases, a palliative gastroenterostomy or exploration only was done. In the eight cases of hour-glass of the duodenum, posterior gastroenterostomy was done in seven and excision with plastic enlargement in one.

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ANTIGENS IN THE WASSERMANN REACTION.*

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While the original conception of the Wassermann reaction as a true antigen-antibody combination has been shown to be false, neverthe-

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less many thousands of tests, carefully checked by clinical findings have shown the great accuracy of the reaction in the diagnosis of syphilitic infections.

The *sine qua non* of a reliable and accurate reaction is a good antigen and recent investigators have brought forth one which has greatly increased the accuracy of the test.

In their original work Wassermann and his co-workers, believing that the reaction was a true antigen-antibody reaction where syphilitic organisms in the antigen joined with syphilitic antibodies present in the patient's serum to fix complement, employed an extract of a syphilitic foetal liver, because such an organ was extremely rich in spirochaetes, and since at that time the cultivation of the specific organism had not been attained.

Noguchi later succeeded in obtaining pure cultures of the spirochaeta pallida and in conjunction with others used such cultures as antigens in carrying out Wassermann tests. To the great surprise of everyone it has been found that such antigens do not give nearly as good results as those with foetal syphilitic or even with normal tissue extracts.

So we must assume that while true antibodies to the spirochaeta pallida are evolved in the course of the disease, there is some other substance which we may call the "Wassermann Body" whose appearance in the blood and spinal fluid of syphilitics is far more abundant and constant than is that of the specific syphilitic antibody. This substance whose exact nature has not been determined acts as a true antibody and will combine with tissue extracts with a consequent fixation of complement and we thus see that while Wassermann's work was based on logical reasoning, it was really a happy accident that gave us this invaluable diagnostic test.

Wassermann's original antigen was an aqueous extract. This product was very unstable and was superseded by the more permanent alcoholic extracts of syphilitic liver.

For some unknown reasons, syphilitic foetal extracts vary greatly in their antigenic value and moreover are relatively hard to obtain. With these objections in mind and for the reasons cited above it was but natural that the next step should be the employment of non-syphilitic tissues in making the extracts and liver, kidney and heart extracts of both man and beast have been tried, though Wassermann and his school still claim that syphilitic liver furnishes the only reliable product.

Liver extracts, aside from their varying power of fixing complement in the presence of syphilitic sera, are often either hemolytic to the blood cells employed in the test or they may tend to prevent such hemolysis even when the serum tested is non-syphilitic in nature.

To obviate these objections Noguchi (1) at-

tempted to, make a tissue extract which would be free from hemolytic and anti-complementary properties, and he found that by extracting beef-hearts with alcohol and ether and then treating such concentrated extracts with acetone that he was able to get an antigen of unusually good qualities, though even his preparations varied somewhat in antigenic strength. We personally have used a number of such antigens in comparison with those made from syphilitic foetal livers and have found them as valuable.

Boas (2) and Thomsen (3) have made a large number of comparative tests of syphilitic liver extracts and plain alcoholic extracts made from human hearts, and found the latter to be better. Boas made extracts from thirty-six syphilitic livers and found only four which were reliable, while Thomsen tested forty human heart extracts and found that they all gave identical results. Moreover, testing fifty-five luetic sera Boas obtained 100 per cent. of positives, with such antigens, while the liver antigen gave only forty-nine positives out of fifty-five sera tested.

After Noguchi's investigations demonstrated the lipoidal nature of the antigenic substance, it was not long before attempts to improve alcoholic extracts by the addition of such substances were made.

Browning and McKenzie (4) added cholesterol to lecithin made from beef-heart and found that it improved the action of their antigen.

Sachs (5) added varying amounts of cholesterol to an alcoholic extract of beef-heart and found such antigens to be fully as good as the best liver extract obtainable.

McIntosh and Fildes (6) made approximately a 0.4 per cent cholesterol reinforced antigen from an alcoholic extract of human heart, and compared this antigen with plain human heart extracts with luetic liver extract and with the Browning and McKenzie preparation.

They found the cholesterolized human heart antigen far superior to the others and furthermore established the fact that such human heart preparations varied very slightly in their anti-complementary and antigenic powers, while as mentioned before syphilitic liver extracts show enormous differences in their suitability as antigens.

Walker and Smith (7) of the Rockefeller Institute took up and greatly amplified the work of McIntosh and Fildes. They made alcoholic extracts of a number of human, guinea pig and beef-hearts and of normal and syphilitic livers. To these extracts they added various amounts of cholesterol and then tested these antigens for their anticomplementary and antigenic action.

Their cholesterolized antigens were tested in comparison with, first, an ether extract of human heart, prepared in Berlin after F. Lesser's formula; second, an alcoholic syphilitic liver

extract standardized by Wassermann, and third, a 0.25 per cent. cholesterinized foetal liver extract. This last antigen was tested by Doctor Jagle and found better than the antigen in use in Sach's laboratory at Frankfurt.

Walker and Swift found that the addition of cholesterin greatly improved all the plain alcoholic tissue extracts. They further demonstrated that antigens to which about 0.4 per cent. of cholesterin had been added were better than stronger or weaker preparations and lastly that human heart preparations were far superior to all others. This they attribute to the presence of some peculiar lipid which is found in human heart muscle.

The great superiority of these cholesterinized human heart antigens is best shown by late cases of syphilis or those under recent treatment. As nearly all of their specimens were from treated cases the percentage of positive reactions found cannot be taken as the usual findings of diagnostic tests for syphilis, but they do show most clearly the great superiority of these cholesterinized antigens. A one to ten dilution in normal saline of the 0.4 per cent. cholesterinized alcoholic extracts was used in the tests tabulated below. Of this emulsion 0.5 cubic centimeter was used in the tubes with 0.1 cubic centimeter of inactivated patient's serum.

The table shows only the percentage of strongly positive reaction found.

and one unit of amboceptor. All bloods are tested for the presence of natural sheep hemolysins and when present they are removed and the blood retested if it has given a negative reaction.

We made alcoholic extracts of human, beef and guinea pig heart, and of foetal and guinea pig liver by extracting the tissue with alcohol in the proportion of ten cubic centimeters to each gram of tissue. The tissue was ground in a meat grinder and the extract placed in the incubator for seven days, being well shaken several times a day. The material was then cooled to room temperature and allowed to stand for one to two days and then filtered. Many of the extracts formed a precipitate after standing several days and this was removed by filtration before the cholesterin was added.

The crude alcoholic extracts were then saturated with cholesterin and allowed to stand in the incubator over night. They were then cooled to room temperature and the excess of cholesterin removed. We thus found that our extracts were only absorbing about 0.3 to 0.4 grams of cholesterin per 100 cubic centimeters while Walker and Swift had found that about 0.9 grams were required to produce complete saturation. Our tissue extracts had been made with about a 95 per cent. alcohol, and on making up a fresh lot using absolute alcohol we found that the amount of cholesterin absorbed was more than doubled.

TABLE I.

Antigen	Human Heart	Guinea-pig Heart	Beef-Heart	Walker & Swift Standard Antigen	Lesser and Wassermann Antigen	Foetal Liver
Early Cases (Under 3 years)	49%	51%	34%	23%	20%	28%
Late cases (Including tabes)	64%	64%	53%	26%	34%	37%
Combined	57%	57%	45%	25%	27%	33%

It has been necessary for us to devise a method of performing the Wassermann reaction which requires a minimum amount of blood, and we therefore use a system which requires only about one to two cubic centimeters of blood which can readily be secured from the finger or ear.

In the test we can employ 0.02, 0.03 and 0.04 cubic centimeters of inactivated patient's serum. Bloods giving complete inhibition of hemolysis with 0.02 cubic centimeters are marked XXX. Where 0.03 cubic centimeters is required we grade the reaction as XX, and if 0.04 cubic centimeters is needed the strength of the reaction is indicated by X. We use .015 cubic centimeters of fresh complement and sufficient amboceptor to produce complete hemolysis of one cubic centimeter of a 1 per cent. suspension of sheep's cells in one hour at 37° C. It will be noted that we use only one unit of complement

Subsequent work, moreover, showed that the absolute alcoholic preparations were superior in their action, consequently we made use only of such preparations in our further work.

By diluting the extracts saturated with cholesterin with proper amounts of the crude alcoholic preparations we made 75 per cent., 50 per cent and 25 per cent. cholesterin saturated extracts and tested these as well as the completely saturated and the cholesterin free antigens. We found as did Walker and Swift that the 50 per cent. cholesterin saturated extracts were just as sensitive as those containing more cholesterin while the anticomplementary action was much less. We used 0.1 cubic centimeters of a 1-10 emulsion in normal saline made up fresh every day or so as we found that on standing the emulsions became much more milky and that they also showed a tendency toward anticomplementary action. We have

lately been using 0.1 cubic centimeters of a one to eighteen emulsion of the 50 per cent. cholesterin saturated human heart antigen, and find this more sensitive than a like amount of a one to ten dilution of the beef-heart preparation.

The guinea pig heart extracts all showed such a marked tendency to become anticomplementary in the course of a few days that we finally discarded them as unreliable. Kolmer, Laubaugb, Casselman and Williams (8) have also noted this peculiarity of guinea pig heart extract.

Our standard antigen was an acetone insoluble preparation of beef-heart prepared after the method of Noguchi and of such strength that 0.1 cubic centimeter, the amount used in the test, contained at least five antigen units when tested against a good positive blood.

We first tested 0.1 cubic centimeter of a one to ten dilution of our 50 per cent. cholesterinized antigens against 50 normal sera and in no case did we get a positive reaction, though a few did give doubtful reactions. 0.1 cubic centimeter of a one to five dilution gave a number of positive reactions and a like amount of a one to eight gave several doubtful fixations. We therefore hold that 0.1 cubic centimeter of a one to ten emulsion is a safe amount to use. Walker and Swift found that this dilution gave negative results when tested against twenty-two normal sera. As noted above we are using 0.1 cubic centimeter of a one to eighteen or one to

We do not attach any diagnostic significance to I reactions except in cases known to be under active treatment, and consider moreover that an absolute diagnosis of syphilis should not be made alone on a reaction of X strength. Such reactions in connection with a definite luetic history, or in the presence of suspicious symptoms call for specific treatment.

The following table represents the results obtained with these 175 sera, when tested against our standard Noguchi antigen and various extracts 50 per cent. saturated with cholesterin. We have omitted the findings of the tests made with 95 per cent. alcoholic tissue extracts and have included only the XX and XXX reactions as positive.

An analysis of this table shows that in early syphilis the cholesterinized human and beef-heart antigens were better than the Noguchi antigen which in turn showed only a slight superiority over the luetic liver antigen, and this in turn was superior to the antigen made from normal liver.

The great value of these cholesterin reinforced antigens lies in their sensitiveness to the sera of late syphilis where our Wassermann has hitherto given a disappointingly large number of negative reactions. In this class of cases we note that the cholesterinized human heart antigen gives three times as many strongly positive reactions as are obtainable with any other antigen available. The same increased sensitiveness is

TABLE II.

Antigen	Noguchi	Human-Heart	Beef-Heart	Syphilitic Liver	Normal Liver
Early (XX and XXX) 25 cases	No. 16	22	17	15	12
	% 64	88	68	60	48
Late (XX and XXX) 150 cases	No. 30	103	56	36	21
	% 20	69	37	24	14
Combined XX and XXX 175 cases	No. 46	125	73	51	33
	% 27	71	42	29	19

twenty dilution and would recommend that each new antigen be tested out against a number of negative blood and the proper dilution thus determined. With 0.2 cubic centimeters of a XXX blood we have found that our antigen works properly in a dilution of 1 to 175 to 1-200.

Using this amount of antigen we then tested 175 sera. Twenty-five from early cases (under 3 years) and 150 from patients infected at an earlier period. Nearly all these patients had received more or less treatment consequently the percentage of positive findings must not be taken as indicative of the diagnostic value of the reaction in general, but is merely intended to show the great superiority of the cholesterinized antigen.

shown in the examination of cerebro-spinal fluids.

Kolmer, Laubaugb, Casselman and Williams (8) have made elaborate study of various antigens, and state that they find the human heart antigen reinforced with 0.4 per cent. cholesterin superior to all others. Similar preparations of beef and guinea pig heart were likewise better than their standard syphilitic liver extract. They found one X reaction in testing twenty normal sera, while their best cholesterinized antigen as compared with their standard luetic liver extract showed 58 per cent. of equal strength reactions, 29 per cent. of stronger and none which were weaker.

They mention particularly three cases which

were absolutely negative to the liver antigen and gave the following results with their cholesterinized preparation:

- 1 case with X reaction. Specific optic neuritis.
- 1 case with XX reaction. Tertiary lues.
- 1 case with XXX reaction. Tertiary lues.

These authors conclude that where cholesterinized antigens are used XX (50 per cent. inhibition of hemolysis) reactions and those of greater strength mean undoubted syphilis. X (25 per cent. inhibition of hemolysis) should be so interpreted if found in conjunction with a definite luetic history, while such reactions and those of lesser strength should not alone be permitted to establish a diagnosis of syphilis. When it is understood that these authors employ a single unit of complement and amboceptor we can see that their reactions are extremely delicate. Personally we have always contended that whatever antigens be employed, a single X reaction must be supported by other evidence before a diagnosis of syphilis should be made. In known treated cases, however, we feel that such reactions should be taken as indicative of the need of further medication.

Thomas and Ivy (9) have recently severely criticized cholesterin antigens as giving positive reactions with non syphilitic bloods. It must be noted, however, that these investigators used a saturated cholesterin extract. We have found as have Walker and Swift, that one-half saturated preparations are practically just as sensitive while less liable to give false reactions. These authors quote the findings of Schamberg, Komer, Ringer and Raiziss (10) who found five strongly positive Wassermann reactions in testing the blood of forty-eight cases of psoriasis with cholesterinized antigens. They failed to state however, that Schamberg and his associates got identical reactions in those five cases with their regular standard luetic liver antigen.

In a recent personal communication Doctor Sobei Ide of Ann Arbor, Michigan has kindly given us the results of 172 examinations made with a cholesterinized human heart antigen which we furnished him. In twenty-four cases his standard antigen and our preparation gave identical positive results. Nine sera negative to his antigen were strongly positive to ours as follows:

- 2 Cases of tabes.
- 1 Case of secondary syphilis.
- 1 Case of early general paresis.
- 5 Cases of treated syphilis.

The spinal fluid of the tabetics and of the case of paresis gave positive reaction with both antigens.

Desmoulière (11) has found that the addition of cholesterin to an antigen made from syphilitic liver by extracting first with alcohol and then with ether, makes an antigen with

which he obtained 100 per cent. of positive reactions in cases of active syphilis.

Paris and Dehmoulière (12) using the antigen mentioned above in conjunction with a cholesterin-lecithin one, similar to Noguchi's acetone insoluble antigen, and a plain luetic liver extract, found that the cholesterin reinforced preparation was far superior to the others in all the stages of syphilis. They tested 154 normal persons with uniformly negative results, showing that cholesterin when properly used does not make an antigen too sensitive.

SUMMARY.

1. The addition of cholesterin in proper amounts to plain alcoholic tissue extracts greatly increases their efficiency.
2. The best results are obtained when a plain alcoholic extract is 50 per cent. saturated with cholesterin. This requires from 0.4 to 0.5 grams of cholesterin per 100 cubic centimeters of heart extract made with absolute alcohol.
3. Probably because of some specific lipoidal body which it contains human heart makes the best antigen of all tissues investigated.
4. With a human heart antigen 50 per cent. saturated with cholesterin three times as many strongly positive reactions were obtained as found with a Noguchi or a syphilitic liver antigen.
5. With such antigens, as in fact with all others, X reactions should not be allowed to establish an absolute diagnosis of syphilis. Reactions of such strength in connection with a definite luetic history, and especially in connection with a history of specific treatment should be taken as indicative of the need of further medication.

Since the above article was written Field of the Bellevue Hospital Laboratory has reported the use of cholesterinized antigen in over 5,000 cases. He considers them quite reliable.

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FRONTAL NEURALGIA.*

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I know you are all familiar with the good work which has been accomplished this year by this society. I feel that for such a small membership, the attendance has been above the average; consequently, I take this opportunity to thank you one and all for having taken such a practical interest in perpetuating this Oto-Laryngological Society and in making this specialty—which, although brief in career, has made great progress—unequalled by other organization in existence.

In 1873, Dr. Clinton Wagner conceived the possibility of such an organization in this country, and through this parent organization other cities soon realized the necessity of establishing societies throughout the different medical centers.

Sir Morrel McKenzie, of London, soon realized the necessity of an organization and it was he who first saw the great benefit to be derived in establishing one there. I well remember him as I stood in awe before him as I was introduced. I realized then there was a great gulf between us. His ponderous capability, his striking personality, and his profound consideration for those poor folk who flocked to him for relief, soon found in him an ardent advocate for greater organization in this specialty. So to-day, we have in every English speaking and in every European country an Oto-Laryngological Society. I trust the time is not far distant when every nation throughout this great universe will soon realize that the Oto-Laryngological Society will be a necessity and not an organization for social convenience.

During the past year we have had many good papers from our own professional colleagues, and we have had equally interesting papers from eminent specialists from other parts of the country.

This interchange of ideas widens our horizon and permits us to appreciate many new thoughts otherwise lost to us. I am sorry for the man who remains away from our society meetings. He soon becomes narrow and bigoted. His self-reliance becomes colossal and his judgment

pitiful. None of us know, it all and no one with human instincts expects the impossible.

Being conscious of my inability to impart them to you in a clear and concise manner, I may have to ask your indulgence while I endeavor to make clear, a few radical ideas I have upon a subject I have been so interested in, viz: "Are the pains in the forehead as generally felt neuralgia?"

I have decided to exclude from the paper acute headaches such as originate in intracranial diseases and confine myself to those that are characterized by acute pain, of a recurrent nature, over the forehead, commonly characterized as being neuralgic.

The pain commonly is found across the forehead, varying in intensity and in distribution. It is not always confined to one side, and accordingly is not a migraine. It is never cranial and, therefore, the use of the word hemicrania is doubly unsuitable, nor is this pain always accompanied with gastric symptoms.

In consideration of the wonderful construction of the nose and the close relationship existing between these sinuses, one cannot but wonder how each sinus seems to adapt itself without interfering with the other functions. Any deviation from its normal process naturally exercises its dominating influence over those not affected. The reason these air chambers lined by the same columnar ciliated epithelium, are so seldom involved is due to the scarcity of all secretory glands in these sinuses; consequently, this accounts for the absence practically of any secretory exudate within the cavity.

Whenever the mucous membrane of the nose becomes infected and this infection extends into the sinus a normal distension follows, either through the formation of pus, or through the generation of gas induced by the anaerobic bacilli. In the gall-bladder and in the intestines, or other closed cavities where the anaerobic bacilli are so numerous, gas is a frequent resultant. Consequently, it is not beyond the range of a possibility that in the frontal sinus, we can have the same etiologic factor that causes a more acute pain than that which is generated through pus formation.

The pain which accompanies a sinus infection is paroxysmal and not continuous. In event of a long and protracted sinus inflammation following such as a coryza or any bacterial infection, then, the disease depends for its existence and severity upon the same etiologic and bacteriological character of the invading processes. If for any reason these passages become obstructed within themselves or become obstructed by the soft tissues within the nose through pressure or through any malformation of the bony construction of the nose, then the pain experienced in the frontal sinus is always in the same relative proportion to the amount of

*Presidential address, Detroit Oto-Laryngological Society, May 26, 1914.

mucous membrane involved. Experience has taught us to appreciate that severe pains are not always over the seat of trouble, but may be transferred to some other organ such as the sphenoidal sinuses and the ethmoid cells. In fact the patient may experience band like pain drawn tightly around the head. The pain may be very short in duration, stabbing in character and yet it may be continuous.

The short pain may be compared to the short pains found in the bowels, gall-bladder, etc. This undoubtedly is due to a gas distension, created through the anaerobic bacilli. Consequently, the efforts made by nature to release the foreign substance within the frontal sinus produces in the frontal sinus the same "colicky" pains, so commonly characterized as being neuralgic.

The amount of pain experienced depends upon the density of the substance to be eliminated from the sinus; therefore, the natural conclusion one draws from this is that it is much easier to eliminate gas than it is pus, providing the frontal sinus is not too firmly closed. I do not ignore the fact that pus is a greater factor to deal with than all other pathological conditions.

An acute pain in close proximity to a sinus should be thoroughly investigated by all the appliances capable of throwing any additional light upon the subject. We should ascertain whether there is a real relationship existing between the adjacent sinuses in question.

In ethmoiditis the pain is considerably relieved by pressure over the nose. A diffused pain over the forehead and extending around the head with a band-like grip is undoubtedly due to a congestion of the soft tissues within the nasal cavity, and a dull pain characterized by a feeling of a fullness and distension within the head, nagging and penetrating in character and very unbearable is undoubtedly a sphenoidal congestion.

A mental depression very often accompanies these pains and is a great source of annoyance, both to the patient and to the attendant.

While it is impossible to deny the existence of neuralgia of the orbital nerves, yet I do contend that we have been imbued with the idea that all pains of the forehead have been popularly designated not only by the laity but by many of our best practitioners as being neuralgic and it is this impression I wish to correct.

How often have we seen others do the same. In commerce, manufacturing and finance and even in other professions have we not seen people follow in the line of the least resistance? In the new economies as applied in the pursuit of any large manufacturing interests, experiments have been made and often they have been found lacking. So changes have been suggested to remedy this evil. Let us infuse a

little of this spirit into ourselves and try to see if we can find a reason so many people take this kind of a powder or pill to relieve themselves of this distressing symptom. Hundreds attribute this neuralgic pain to an impaired kidney, gall-bladder, uterus, intestines, eye or some infectious fever, yet all complain of the pain over the eyes as being due to one of the other aforesaid diseases.

If neuralgia (neuritis) is an inflammatory disease and due to some toxine involving the nerve filaments, then the pain is manifestly an inflammatory product, would be expected to remain active, and not yield to periodical attacks such as we find in headaches involving the sinuses. I consider all pains of the forehead of an extra-cranial character due to an early incipient infection originally and capable of reproducing a mild inflammatory product, recurring upon the slightest provocation. And the severity is due to the bacteriological and etiological factors, involving the nasal mucosa. Pains felt over the forehead, radiating through the eyes, teeth and occipital region are undoubtedly due to a congestion pressing upon nerve filaments. Consequently we should endeavor, if possible, to eliminate all immaterial symptoms, and to ascertain by a thorough examination the focus of the trouble.

After a thorough examination of the nose has been made, and the mucosa found to be congested, conservative treatment may be all that is necessary. Otherwise, consideration must be given to the structure entering into the formation of the internal nose. Enlargement of the middle turbinate with or without polypoid degeneration; chronic inflammatory condition of the ethmoid cells and inflammation of the sphenoidal cavity, all predispose to closure of the frontal sinus opening. These conditions are considered surgical and are not amenable to conservative treatment.

A few years ago I reported a number of cases upon which I operated and since then I have continued to resort to surgical intervention with excellent results. The point I wish to make here is that operations are indicated only in selected cases, viz., those which show repeated recurrence and marked chronicity.

TREATMENT.

Fortunately, conservative measures will frequently produce very satisfactory results in the majority of sinus cases, and while numerous procedures have been advocated by the surgeon to meet the same desired end, yet, in either case the same principle is involved, viz. drainage. To attain good results one should preserve as much of the nasal mucosa as possible. No destruction of tissue should be countenanced without first making every effort at our disposal to encourage a free discharge from the sinuses. By

this I mean remedies calculated to shrink the congested musosa. The combined use of cocaine and adrenalin usually prevents a hyperemia of the mucous membrane. Careful douching of the nose with saline solution following the application of cocaine, washes out all the thickened secretion and permits a free circulation of air in all the sinuses. I realize this procedure is contrary to the experience of the aurist, but experience has taught me that there is no danger of infecting the ear if a thorough technic is followed. The douching can be repeated as often as the case requires it. Nothing relieves the pain so quickly and nothing is so comforting to the patient.

Every effort should be made to encourage the patient to be patient and endure the pains, because it is much better to endure it for a while than to undergo an operation.

Regulation of the bowels in the treatment of these cases is of the greatest importance, otherwise the application of medicines to the nasal mucosa will be of little value.

I was prompted through curiosity to try the mixed infection phylacogen on a few cases of ethmoiditis, associated with a frontal sinus discharge. Two cases gave excellent results and one acute frontal sinusitis did not give much encouragement until I re-enforced the treatment by the aforesaid methods.

CONCLUSION.

The popular belief is that gastric disturbance forms the proximal cause of frontal headache. This is a mistake. If, however, a patient with a chronic disease of the nasal mucosa becomes a victim of an acute attack of indigestion there will be an increased congestion, an interference with drainage from the diseased sinus from which a headache will result. This leads to the very widespread and erroneous belief in the so-called sick headache.

THE ROLE OF PITUITARY EXTRACT IN OBSTETRICS.*

A Statistical Study of 100 Cases.

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In this paper, no attempt will be made to give the history or physiological action or to review the literature with reference to pituitary extract but will deal entirely with the clinical study of 100 obstetrical cases where this substance was used. Of this number twenty-three were my own cases and for the remainder of the reports, I am indebted to Drs. A. W. Crane,

R. G. Cook, F. B. Crowell, R. R. Leland, D. J. Scholten, E. Van Camp and A. S. Youngs.

The extract was not used indiscriminately but mostly in those cases which had ordinarily experienced a tedious labor or ultimately must be delivered by forceps. That preparation known as Pituitrin was employed in all cases.

Of the 100 cases:

- 34 were para—I.
- 17 were para—II.
- 21 were para—III.
- 10 were para—IV.
- 9 were para—V.
- 9 were para—VI to XI.

Of the presentations:

- 89 were cephalic.
- 2 were breech.
- 9 were not given.

Of the 89 cephalic cases:

- 61 were L.O.A.
- 20 were R.O.A.
- 4 were L.O.A.
- 4 were R.O.P.

At the time the extract was given the degrees of cervical dilatation were as follows: (4 fingers representing complete dilatation).

- 60 were complete.
- 26 were 3 fingers.
- 10 were 2 fingers.
- 3 were 1 finger.
- 1 had no dilatation.

If forceps had been applied at time of administering extract:

- 43 would have been "high."
- 9 would have been "medium."
- 48 would have been "low."

The *indications* for using the extract were as follows:

"Exhaustion."	30.
"Slow Progress."	
"Inefficient Pains with rigid perineum."	} 52
"Inertia."	
"To start true pains."	11
"Need of rapid delivery; gall stones."	1
"Post Partum Hemorrhage."	1
"To save a frail woman from prolonged labor."	1
"Not given."	4

The dose was 1 cubic centimeter and given hypodermically.

- 78 had one dose.
- 19 had two doses.
- 3 had three doses.

Response to the drug was observed as follows:

- 2 not reported.
- 4 no response.
- 2 in 1 minute.
- 13 in 2 minutes.
- 11 in 3 minutes.
- 7 in 4 minutes.
- 21 in 5 minutes.
- 4 in 6 minutes.
- 5 in 7 minutes.
- 3 in 8 minutes.
- 1 in 9 minutes.
- 10 in 10 minutes.
- 3 in 12 minutes.

*President's Annual Address, Kalamazoo Academy of Medicine. Delivered December, 1913.

8 in 15 minutes.
3 in 20 minutes.
3 in 30 minutes.

From this table we see that four cases or 4 per cent. gave no response to the extract. Of the ninety-four cases seventy-seven, or 82 per cent., responded inside of ten minutes and the other 18 per cent. responded in ten to thirty minutes. The average time required for patients to respond to the extract was observed to be 7.5 minutes and when labor was not terminated by it, or by forceps, the average duration of its effect was about two hours, after which the pains returned to their former type of inefficiency or stopped entirely.

Of the 100 deliveries, 81 per cent. were completed by means of the extract alone. In thirteen other cases there was also response but insufficient to deliver and forceps were finally employed. Four of these forceps cases were occiput posterior presentations. Of these eighty-one deliveries:

- 64, or 79 per cent. were completed in first hour.
- 12, or 15 per cent. were completed in second hour.
- or 94 per cent. of all cases delivered were completed inside of two hours.
- 5, or 6 per cent. were completed in from two to seven hours.

The average time required for delivery was about one hour. This however, included those cases with little or no dilatation of the cervix. For cases fully dilated, the average time required was not more than thirty to forty minutes.

As to general observation, the following were noted:

In eighty-seven cases there were no bad effects reported.

In the remaining thirteen cases, abnormalities were observed as follows:

1. Two cases had incarceration of placenta. One of these was delivered by manual removal and the other one by giving one cubic centimeter more of Pituitrin.

2. Asphyxia neonatorum was observed in two cases, requiring about ten minutes for resuscitation. One case was a hyper-sensitive primipara of forty-three, to whom ether had been administered rather freely. The asphyxia was about the same degree as was observed in another case who had ether and no Pituitary Extract.

The other was a primipara who had been in labor thirty-six hours and where cervix had been dilated with a Barnes' Bag.

3. Post partum hemorrhage occurred in a mild form in two cases, one was an anemic primipara who had had two cubic centimeters Pituitrin in divided doses. Pulse did not go above 100, although the uterus ballooned out three times considerably more than normal and patient felt faint.

The other case was controlled by giving one cubic centimeter more of Pituitrin.

4. Lacerations were reported in five cases, two of these being extensive. All lacerations occurred in primipara.

5. One pair of twins was delivered without any complication.

Two cases had blood pressures of 160 and 170 respectively and apparently were not made worse by the extract.

CASE REPORTS.

In a few cases the Extract was used simply to save pain as instanced by the following case:

Para.—III. Age 36. R.O.A., with cervix effaced and dilated. Had history of protracted labors but eventually delivering without instruments. Ether was given to obstetrical degree, on account of very strong pains at two minute intervals. As soon as effect was obtained, the pains decreased markedly in severity and the interval became five minutes. Pituitrin, one cubic centimeter was given and in five minutes the pains had returned stronger than before and at less than two minute intervals, accomplishing delivery without injury to woman or infant in fifteen minutes and this, with the ether pushed almost to the surgical degree. This woman was no doubt saved from five to twelve hours of suffering, judging from former experiences.

False pains are sometimes present in such severity and for so long before labor that it becomes highly desirable to accomplish a delivery. The cases below illustrate the value of Pituitary Extract for this purpose.

CASE I. Primipara. Age 23; at term. Pains intermittently recurring about three minutes apart from 6 P. M. to 9 A. M. when cervix was effaced and dilated only one finger. Patient had been very nervous and uncomfortable for several days on account of delayed labor. 1 cubic centimeter Pituitrin was given into buttocks (because field was convenient and already prepared). In fifteen minutes pains became regular, more severe and one minute apart. This lasted two and one-half hours, when they lagged again for two hours with practically no pain. A second dose was then given followed by normal delivery one hour and ten minutes later with no lacerations.

CASE II. Para.—II. Age 28. Over due. Had been having irregularly recurring pains for two days. Cervix dilated three fingers. Patient had suffered greatly during pregnancy with pruritis vulvae and was extremely nervous. The two days without sleep added, caused marked exhaustion and delivery was much to be desired after six hours freedom from pains. One cubic centimeter Pituitrin was given and normal delivery was completed without lacerations in forty-five minutes.

CASE III. Para.—X. Age 37. At term. With no effacement or dilatations, she had had pains for six to eight hours at five minute intervals. Largely in this case for experimental reasons, we gave one cubic centimeter Pituitrin after there had been cessation of pains for four hours. After thirty minutes, the pains started up at two minute intervals. This lasted for two and one-half hours and they then stopped but had accomplished a nearly complete dilatation. A second dose was given an hour later and the delivery was completed in fifteen minutes after its administration, without laceration.

But of more value than to permit the use of ether, to shorten labor and to start true pains, is the use of the extract to replace forceps. Repeatedly we have delivered cases by this means after every indication for forceps was present. These cases illustrate:

CASE I. Para.—IV. Age 32. R.O.A. Complete dilatation. Had been in labor for about eighteen hours and was exhausted. Head was in low position but no advancement whatever for several hours. I was called to this case as a consultant to deliver with forceps. Instead of using forceps, however, we gave one cubic centimeter of Pituitrin which caused a delivery in one hour.

CASE II. Para.—III. Age 26. Had had two difficult forceps operations to terminate very tedious labors on former occasions. This labor had been in progress as on former occasions without advancement for several hours. Cervix was effaced, dilatation nearly complete. L.O.A. Two doses of one cubic centimeter each of Pituitrin were given twenty-five minutes apart. Patient delivered normally in forty minutes after first dose.

The use of Pituitary Extract requires an accurate diagnosis, the same as do forceps and should be used only for overcoming inertia. It has, however, the advantage over forceps that all the usual "conditions" for forceps need not be present, e. g. the cervix need not be completely dilated and the bag of waters need not be ruptured.

Edgar says that he found inertia of uterus, as the indications for forceps in seventy-five out of 208 cases. Forceps were used more for this than any other condition. De Lee states that 75 per cent. of forceps operations are done on account of uterine inertia. When we find that Pituitary Extract will deliver 94 per cent. of these 75 per cent. of inertia cases, with practically no bad results, we cannot help contrasting this with the possibilities of the instrumental delivery with its requirements of a larger diameter in birth canal; with the danger of perforating the uterus or injuring the recto-vaginal wall or cervix by the tips of the forceps; with the possibility of injuries to pelvic joints, urethra and perineum. Not only this but we should contrast the slight danger of Pituitary Extract to the infant against the occurrence of scalp injuries, pressure paralysis, later contractions of neck muscles injured at birth, fractured bones and compressed brains and cords and "still births" (killed babies), which forceps are so apt to cause. When we realize that these things occur with good obstetricians, how much more likely they are to occur in the hands of the general practitioner, who really does most of the obstetrical work.

The use of Pituitary Extract has also a definite role in the prevention of puerperal sepsis. Puerperal sepsis is like sepsis in any other part of the body. It simply means, first, that we have a laceration or abrasion of the mucous membrane in the vagina or uterus; and second,

that we have introduced infection so that it can pass through the abrasion into the lymphatics. We have two routes by which infection can enter; first, through the placental site, and second, through abrasions and tears. Puerperal sepsis is always by one of these routes. The more important of these two factors is the introduction of infection since uninfected abrasions heal kindly.

Infection undoubtedly follows the use of forceps more than it does normal labor, both because they are at the same time the cause of abrasions and tears and the carriers of infection into the genital tract. Obviating the use of forceps then, would also help to prevent sepsis.

By shortening the hours of labor, it conserves the bodily strength and in turn the resistance to infection as well as to obviate the need of repeated examinations or manipulations which might convey infection to the genital tract.

Some observers have also reported that Pituitary Extract will evacuate both bladder and bowels in from one-half to twelve hours. Personally, I have not made this observation but if true, this again would help to prevent catheter infection and intestinal toxemia.

The simplicity of the using of Pituitary Extract as contrasted to that of forceps should not discourage the development and practice of a good aseptic technic but so long as good asepsis in actual practice is so rare in obstetrics it is far preferable to have the hypodermic needle used than to apply forceps as they so often are used under unfavorable surroundings and without proper equipment of sterile goods or help. It would greatly reduce septic infections.

While in selected cases this substance is undoubtedly of great value, in obstetrics there are a few precautions to be considered. It is not indicated if the pains are already producing a steady advancement of the fetus. It should not be used in disproportions between the head and birth canal or in mal-presentations, as occiput posterior, transverse or face. It should not be used if rupture of the uterus threatens. It should not replace vaginal or abdominal Cesarean section, when proper help and hospital facilities are available, but might be safer than section where delivery is urgent and when the accoucheur is alone, with limited equipment and far from help. It is better not used until dilatation of cervix is complete or nearly so, although this is not an absolute contra-indication as cases cited above show. While it will quickly contract a uterus and stop hemorrhage, it is not so permanent as ergot, which should be given in all cases where bleeding is feared.

Practically all the bad effects pointed out by Edgar and confirmed by Polak and Craig in at the Congress of Physicians and Surgeons in

May 1913, were due to the use of this substance during the early hours of labor before dilatation occurred. Lacerations of cervix and fetal asphyxia were cited as due to its use.

CONCLUSION.

The most striking points in these observations are:

1. The Extract is practically free from danger if used after dilatation is mostly accomplished and if used for simple inertia.
2. It will save many hours of suffering and exhaustion on the part of the patient, by hastening labor and permitting ether.
3. False pains may be changed to true ones in some cases—75 per cent. in this series.
4. It will replace forceps in probably 70 per cent. of cases where they are indicated.
5. It will help to prevent puerperal sepsis.

LOUIS PASTEUR.

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In his essay on *The Western Man*, Charles Dudley Warner, in discussing his horizon, said: "He knew no master, not even the old masters." Lest we, too, be ignorant of the masters it is meet that now and then we turn aside from purely scientific paths and contemplate the lives of those who by their persistent, patient industry have scaled heights hitherto unknown and have led a grateful world to viewpoints whence new light has flooded the problems of science. And, when this has resulted in the saving of countless lives, we may well pause in admiration at the simple, industrious life which has in its brief span known so many triumphs.

The place of his birth was Dole and the date December 27th, 1822. Family tradition would have had Louis Pasteur a tanner, for three generations of tanners had preceded him, but his tastes and ambitions seemed quite other than for the path made honorable by his worthy progenitors. His early days, spent mostly at Arbois, were characterized by the development of artistic traits and an indefatigable fondness for reading.

Of early development, too, was the serious bent of his mind, which worked so cautiously that its possessor was commonly considered as slow. His friend, the headmaster of Arbois college, however, discovered the spark of genius which was later to be recognized throughout the civilized world, and opened before his pupil dreams of a career at the great *École Normale* (founded in 1808 by Napoleon I. for the training of young professors, and one of the requirements of which was that its pupils sign an en-

gagement for ten years' work in public instruction.) Here much of Pasteur's later work was done.

His preparatory course was interrupted by a homesickness which compelled his return to the parental roof where he again developed his talents as an artist; but an artistic course did not yield him satisfaction and he applied himself most industriously to his studies, developing now that ardent fondness for work which knew no cease to the day of his death and which soon led him to enrollment at the *École Normale* (1843) to which however he gained entrance only after failing once in examinations. He was much in the school's library and is remembered as grave, quiet, almost shy. From his reading he received much inspiration to work, as also from the lectures on Chemistry of J. B. Dumas who was later one of his dearest friends.

Since 1770, tartaric acid had been known and, though paratartaric or racemic acid had been produced, little was known of it. Its mystery proved attractive to Pasteur who was thus led into studies of polarization and crystallography which resulted in his differentiating the two tartaric acids, a discovery which brought him to the attention of the eminent scientists of the *Académie des Sciences*.

At the age of twenty-six, we find him avowing his poverty, confessing his devotion to science and with only a University position, suing for the hand of the daughter of the Rector of the Academy of Strasburg, M. Laurent. His wife, from the start, approved that the laboratory should come before everything else and this was their habit through life. Still enamored of his researches on tartaric acid, he pursued his studies until in triumph he announced that he had made racemic from tartaric acid and so meritorious were his labors that he received the ribbon of the *Legion of Honor*.

In September, 1854, he was made Professor and Dean of the new *Faculté des Sciences* at Lille and rejoiced at the opportunities for work here accorded him. Popular as a teacher, he did most excellent work, especially in studies upon fermentation and on January 30th, 1860, the *Académie des Sciences* conferred upon him the *Prize for Experimental Physiology*.

He studied at great length the problem of spontaneous generation making an exhaustive microscopic study of atmospheric air. After a year's study he reached this conclusion: "Gases, fluids, electricity, magnetism, ozone, things known or things occult, there is nothing in the air that is conditional to life except the germs that it carries." The criticisms passed upon his views and the fault found with his conclusions only drove him to renewed studies remarkable for their persistent industry and patient detail. He renewed his studies on fermentation and in

1862 was elected to membership in the Academie des Sciences and later was presented to the Emperor whom he assured that, from his studies on fermentation and putrefaction, all his ambition was to ascertain the causes of putrid and contagious diseases. Truly, a large ambition!

Pursuing his studies on spontaneous generation, he demonstrated most conclusively that life came only from germs, and in his studies on fermentation he proved the diseases of wines coexistent with the presence and multiplication of microscopic vegetations. Some undesirable changes he found could be prevented by holding the wine for a few moments at a temperature of 50° C. to 60° C.

But Pasteur was now to be called to one of his great works. An epidemic was ruining the industry of silk-worm cultivation and causing tremendous monetary losses. From 1700, the silk industry had grown to great proportions in France and upon it whole districts depended for their prosperity. A mysterious disease was destroying the nurseries of the silk-worms and to its study Pasteur was now (1865) called, by the Minister of Agriculture. At once he betook himself to the silk-district and carefully surveying his material, decided on patient microscopical study (of the corpuscles) of the silk-worm. Though death deprived him of a loved father and even invaded his own family, his grief scarcely interrupted his work and though this was pursued with the greatest industry, 1867 found him still lacking some steps essential to the completion of his work. He now knew the infectious nature of the disease and was nearing the secret of its control.

For his work on wines, he received from the hands of the Emperor a grand prize medal of the exhibition of 1867. In Oct. 1868, overwhelmed with work, he was seized with apoplexy which, however, his indomitable will hardly permitted to turn him aside from the path of his cherished plans for work. Indeed just a week after his attack, a note which he had insisted on dictating was reported to the Academie concerning his labors with the silkworms and three months later, in spite of protests, he was back again at his task, watching a new crop of silkworms. Even when he had attained a complete triumph over the silk-worm disease and could predict with certainty whether a crop of worms would prove healthy or not, he was beset with the most petty jealousies and back-bitings, his critics seeking to throw every obstacle in his pathway; but in 1869 he felt sure of the reward of his four years of incessant labor, a labor which later brought him the gratitude of his country and honors innumerable and saved to France many thousands of francs annually. In 1870, he gave practical demonstrations of the

success of his methods and received a belated satisfaction.

The seeming overbearing arrogance of Germany in the struggle of 1870 with France wounded Pasteur keenly but he patriotically felt that the course of France was that of honor. He even returned to the University of Bonn the diploma by which had been conferred the degree of M.D. in 1868, and received in reply for the "insult" to the German King from the faculty the "expression of its entire contempt."

After studies upon beer which were of importance he laid down three principles:

1. Every alteration depends upon the development of micro-organisms which are ferments of diseases.
2. These germ-ferments are brought by the air, by the ingredients or by the apparatus used in breweries.
3. Whenever beer contains no living germs, it is unalterable. Thus he established that just as wine could be preserved from various alterations by heating, so beer could escape disease ferments by being brought to 50° to 55° C.; points which were commercially most important. But he was not to establish his points without seeing them attacked and being led into long discussions considering aerobic and anaerobic germs.

Pasteur was greatly attracted to the field of the infectious diseases and regretted that he was not a medical man, for when any work intruded upon the field of medicine he was slightly referred to as a chemist. Nevertheless early in 1873, he was elected to the Academie de Medicine.

The theory of germs as responsible for certain diseases was at this time (1873) received most ironically and brought sarcastic references to "laboratory surgery," "experimentalists" etc.

Need enough was there for theories, for infection was rife and the operation of ovariectomy inspired such terror that a physician declared that "it should be classed among the attributes of the executioner." The infected air of the hospitals was blamed as the cause and so the Assistance Publique hired for hospital purposes an isolated house near Paris in a healthy spot. In 1863, ten women sent here for operation only left in their coffins and the neighbors dubbed it the *House of Crime*. Pus seemed to germinate everywhere, said a student of that time. Of all this Pasteur was a careful student and observations led to some important hospital reforms in the more careful washing of wounds, less frequent and more careful dressings and a consequent diminution of infection. Lister, then developing antiseptic, early in 1874 wrote Pasteur thanking him for demonstrating to him (Lister) by his "most brilliant researches" the truth of the germ theory of putrefaction and assuring him of the great debt which surgery already owed to Pasteur. So slow, however, of adoption in France were some of Pasteur's theories that the surgeons of the Academie de

Medicine hardly grasped his meaning when he advised them to put their instruments through a flame before using. Observations upon a badly dressed wound led him at this early period to announce that cotton wool used for surgical dressings should first be heated to a very high temperature. If germs could be excluded, he insisted, from wounds and dressings, danger of infection would end. This was a long step for those times.

As if to make amends for the loss of the Sorbonne professorship, which ill health had compelled him to give up, the National Assembly in 1874 voted him by a vote of 532 to 24 a public recompense, a life annuity of 1200 francs for his great services, a commendable mark of appreciation from a grateful country. Though his health had been somewhat impaired, with unflagging industry he still pursued the even habit of his life, retiring daily at 10 P. M. only to be found promptly at eight o'clock each morning at his work in the laboratory, whether his night had been restful or disturbed.

He did some interesting work with anthrax and thought much of the bearing of his work upon surgical problems. To the surgeons he said (1877). "If I had the honor of being a surgeon, convinced as I am of the dangers caused by the germs of microbes scattered on the surface of every object, particularly in the hospitals, not only would I use absolutely clean instruments, but, after cleansing my hands with the greatest care and putting them through a flame (an easy thing to do with a little practice) I would only make use of charpie, bandages, and sponges which had previously been raised to a heat of 130° C. to 150° C.; I would only employ water which had been heated to a temperature of 110° C. to 120° C." Verily, a prophet of asepsis!

The Minister of Agriculture sought his services in the investigation of so-called spontaneous charbon, which was devastating the flocks of a certain district. His first effort was to prove false the theory of its spontaneity and this he succeeded in doing, though publicly assailed by detractors and hostile critics. New attacks of the disease were traced to germs which persisted in the soil where had been buried sheep dead in previous epidemics. These researches led later on to his development of a vaccine against anthrax which proved of enormous value to the farmers of France.

He now much frequented the hospitals in his work. Puerperal fever was rife and had long been a dark blot upon medical science. In 1863 the Paris Maternity Hospital had shown 64 deaths out of 347 confinements between April 1st and May 10th and had to be closed, most of the survivors succumbing on being transferred to another hospital. In 1864, 310 deaths occurred out of 1350 confinement cases and in 1865 the hospital was again closed.

Listerian antiseptic methods were introduced with some improvement. Pasteur found and isolated a microbe in the shape of a chain which he did not hesitate to declare the most frequent cause of puerperal infection, and he even interrupted a learned colleague discussing the causes of puerperal infections to say: "None of those things cause the epidemic; it is the nursing and medical staff who carry the microbe from an infected woman to a healthy one." Doubt being expressed as to the microbe, Pasteur drew a diagram on the blackboard of the chain-like organism and said most earnestly "There, that is what it is like." He disconcerted the attendants at the hospital by his assurance and simplicity when he criticized their appliances and declared that all the linen should be put into a sterilizing-stove.

Though ever passionately devoted to his work, his family relations had always been most delightful and now in middle life when his son and his daughter had married, his presence completed a happy family circle where all evinced an interest in, and were more or less initiated into, his past work and present experiments. The domestic side of this busy life was indeed quite ideal.

The afflicted chickens of France, now dying of chicken cholera, appealed to the patient investigation of this industrious savant. A suitable culture medium of this virulent organism was at first a difficult problem but finally its ready growth upon chicken broth was accomplished and a growth effected which, though virulently fatal to hens and rabbits, was rarely mortal to the guinea pig. It was then observed that the above results obtained with new, fresh, cultures and that from the effects of older cultures hens would sicken and later recover. Oxygen was proved to be the attenuating agent and thus was he led to hope and work for an immunizing vaccine.

Artificial attenuation and vaccination by the attenuated virus, he was able to announce at the end of 1880; this with reference to chicken cholera, and long tests and counter-tests, most careful laboratory work, finally proved the same principles applicable to the charbon disease. "Nothing would have consoled me" he exclaimed one day on returning from his laboratory, "if this discovery which my collaborators, and I have made, had not been a French discovery."

On Monday Feb. 28th, 1881, Pasteur announced the discovery of his vaccine for splenic fever.

Doubt and distrust, of course, assailed his results but with all confidence he foretold the survival of vaccinated sheep and the death of the unvaccinated in public experiments and his prophecies were fully sustained. The veterinary surgeons at first most incredulous now became apostles of his doctrine and all France was soon

enthusiastic over the success of his labors. And the government accorded him the grand cordon of the Legion of Honor. To his credit, be it said, that his cup of happiness was only full when his two collaborators, Roux and Chamberlain, also received the cross of the Legion of Honor, and this Pasteur had eagerly sought to bring about.

Hydrophobia had already claimed the attention of his laboratory. Modest to a fault and present by invitation at the International Medical Congress in London, he little understood that the cheers at his entrance were intended for him, and was touched when later the Crown Prince of Prussia made his way to him, introduced himself and expressed his pleasure in applauding him. Pasteur proved the greatest success of the Congress.

How ambitious he was in his studies of the contagious diseases he shows in a letter to his wife from Bordeaux, whither he had gone in the hope of getting possession of the body of a victim of yellow fever, the germ of which he hoped he might discover. "Afterwards," he wrote, "it would be really beautiful to make that agent of disease and death its own vaccine." Yellow-fever, bubonic plague, and cholera, he thought most worthy problems.

In April 1882, Pasteur was elected to the Académie Française and became one of the forty immortals, taking the place made vacant by the death of Littré, and being welcomed officially by Renan.

Towns interested in the silk-culture and in agriculture in the following week paid him distinguished honors, on receiving which their object was most modest averring that his life-long passion had been for science and that, as to efforts he was theirs until death (*usque ad mortem*).

On a Sunday in June, a distinguished delegation headed by Dumas visited Pasteur to remind him that it was forty years since he first had entered the École Normale as a student and to lay at his feet their formal honor and praise for the work which he had so gloriously accomplished. To how few is the pleasure granted to receive at the hands of friends such merited words of praise and honor!

Investigating the swine disease, *rouget*, or swine fever, which had caused the death of thousands of pigs, he sent a brief preliminary report to the Academy in Dec. 1882, reciting that he had found the disease due to a special microbe not difficult of cultivation outside the animal's body, exceedingly small, which would kill rabbits and sheep but have no effect on hens, which inoculated in pure culture would uniformly bring fever and death but which he had succeeded in inoculating in benignant form and making its victim refractory to the disease. Thus resulted a successful vaccine against another

disease so fatal to the live-stock of France. Paul Bert, in a report, thus recapitulated Pasteur's works: (1) Each fermentation is produced by the development of a special microbe. (2) Each infectious disease is produced by the development within the organism of a special microbe. (3) The microbe of an infectious disease, cultivated under certain detrimental conditions, is attenuated in its pathogenic activity; from a virus it becomes a vaccine. In recognition of these accomplishments the National Assembly now voted Pasteur an annual pension of 25000 francs (instead of 12000) to revert to his widow and then to his children. Thus an appreciative country honors her children of Science. He was touched, too, when a little later an inscription and memorial were placed in the house where he was born and on this occasion his scientific achievements were appropriately recited, but he received all with great modesty, making the occasion one for a tribute to the inspiration received from his parents.

He, with Koch and other scientists, sought in vain for the specific germ of cholera at Alexandria and reported that their two months' study was far from solving the etiological problem of cholera but would perhaps be not useless for the orientation of future research. Koch later on made known the cholera bacillus. Pasteur's vain efforts to isolate and cultivate the specific cause of hydrophobia naturally stirred the minds of scoffers to ready and dismal prophecies of failure in his studies on this disease, but the studies were none the less vigorously prosecuted.

The first two mad dogs for experiment were brought to Pasteur's laboratory in 1880 and his study of hydrophobia was placed above every other. Three things seemed certain: (1) that the rabic virus was contained in the saliva of mad animals; (2) that it was communicated through bites and (3) that the period of incubation might vary from several days to several months. This long period of incubation made experiments with the saliva very slow and often unsatisfactory and M. Roux, one of Pasteur's assistants, noted the early and certain involvement of the dog's nervous system when the disease was developed, the medulla and finally the cord being attacked.

Inoculation of other animals from the brain of a dog dying of hydrophobia proved matter here obtained more virulent than that obtained in the saliva. Then followed the inoculating of such virus directly under a trephined brain and in fourteen days characteristic hydrophobia was produced.

A trephined and inoculated rabbit died paralyzed and from his medulla another was inoculated and another and the period of incubation became shorter and shorter, finally

reaching seven days and being seemingly fixed at this period.

Seeking now an attenuated virus, he suspended portions of a rabic medulla in dry air in a sterilized vial and found that as it dried its virulence decreased and was nil at the end of fourteen days.

This was then crushed, a watery solution made and this inoculated into a healthy dog who received the next day an inoculation of material of thirteen days' dessication and so on until he received an inoculation from a rabbit dead the same day of hydrophobia. These dogs might now be bitten by other rabid dogs or be inoculated with rabic virus with impunity.

These results Pasteur then wished officially verified. The Minister of Public Instruction, therefore, at Pasteur's request appointed a Commission in May, 1884. Early in August, in its report the Commission which had experimented on many dogs referred to "these magnificent results, which devolve so much credit on French Science which give it a fresh claim to the world's gratitude." At the Commission's wish, a site was provided for a large kennel yard where increased opportunities might be had for other experiments.

At the International Medical Congress in Copenhagen, Pasteur detailed the steps in his work thus far, leading up to the certainty of his having attained a vaccine against canine hydrophobia, enthusiastic applause greeting his conclusions.

In September, 1884, however, so conscientious and careful was he in all his work that he replied to an inquiry from the Emperor of Brazil that it would take him nearly two years to bring his work to a happy issue.

Many, seeing Pasteur's name so often connected with rabies fancied him a veterinary and much pestered him with enquiries.

In May, 1885, immense kennels specially prepared for him were ready to receive his dogs made refractory and which would be subjected to bites, inoculations, etc., to thoroughly test their immunity and here sixty dogs were installed and with those left elsewhere brought the number up to 125 under experiment, so carefully was all work done.

On July 6th, 1885, a small Alsatian boy of nine, bitten two days before, entered his laboratory and practically forced upon Pasteur his first application of his work to a human being. His emotion was much stirred but his advisers urged him to treat the case. As he used inoculations more and more virulent, his anxiety was at fever heat and he passed through a succession of hopes, fears, and anguish. The boy was inoculated twelve times in ten days and kept under observation until early in August when he went home well and out of danger. There was early necessity for the organization

of a service to treat preventively applicants who had been bitten and the world was newly armed against a dread disease.

Pasteur declared that after five years' study he had made dogs refractory and now had treated successfully one victim and was undertaking others. The announcement to the Academy of Sciences of his successful results brought him expressions of unbounded admiration. As soon as Pasteur's paper was published victims began to arrive from all sides, and Pasteur personally attended all of the inoculations and exhibited a personal interest in all his patients and manifested the keenest grief when a little girl of ten, who had not received inoculations until thirty-seven days after her bite, succumbed to the dreaded disease.

In April, 1886, an English Commission, of which Mr. Victor Horsley was secretary (Sir Jas. Paget, Dr. Lauder Brunton, Sir Joseph Lister, Sir Henry Roscoe et al.) studied and confirmed his wonderful results.

His health impaired, he sought needed rest in the fall of 1886, a most unusual indulgence, all too short, however. In 1887, he became, at the request of the Academy of Sciences, its Life Secretary but could not long fulfill its duties. He watched the erection in 1888 of the buildings generously provided for the Pasteur Institute, designed for treatment, research and as a teaching centre and he was much overcome at the honors accorded him upon its dedication, the rich and poor, the French government, the Czar, the Sultan, the Emperor of Brazil having all contributed to its funds. "Alas," he said, "mine is a bitter grief that I enter it, a man vanquished by Time," and to his collaborators he added: "Keep your early enthusiasm. Never advance anything which cannot be proved in a simple and decisive fashion" and he concluded "We may assert that French Science will have tried, by obeying the law of Humanity, to extend the frontiers of Life." Though his step was heavy from age and ill health, he daily attended his hydrophobia clinic, with a cheerful word for each patient.

In May, 1892, Denmark, Sweden, and Norway had formed various committees to celebrate his 70th birthday, and on the morning of Dec. 27th, 1892, the great amphitheatre of the Sorbonne was filled, the seats of honor held by French and foreign delegates, members of faculties, scientific societies etc., and Pasteur entered on the arm of the President of the Republic. Medals and addresses told of the esteem and honor in which he was held, such homage as would have turned the head of one less sane, but his native modesty was here characteristic and his advice to his fellows to "Live in the serene peace of laboratories and libraries" was characteristic of his ambitions. Many gifts were received for the work of the Institute as also suggestions as

to needed research. One mother wrote "if you will, you can surely find a remedy for the horrible disease called diphtheria," and Pasteur hoped that he might live to see these wishes realized, a study, which Drs. Roux and Gersin were eagerly pursuing and they already recognized that the danger of the bacilli lay in the toxins. It remained for Behring and Kitasato to discover the antitoxin, but for this French workers had opened the way and early application of the antitoxin was made in the hospitals of Paris. The Pasteur Institute built stables, bought a hundred horses and in three months 50,000 doses of serum were to be given away. All of this Pasteur eagerly followed and was of course greatly pleased when Gersin communicated the discovery of the bacillus of plague.

Taken critically ill, he was most tenderly watched over by his distinguished laboratory workers, Roux, Chantemesse, Calmette, et al. In convalescence, he was delighted to receive his old friends and to keep in touch with the work of the laboratories, but failure was gradual and on Saturday, Sept 28th, 1895, he was at rest from his labors.

A most indomitable will, a never-flagging energy, a magnificently high moral purpose, persistent industry, in the face of calumny and discouragement, a lofty devotion to his ideals, great things accomplished, these brought him the gratitude of his own country, the plaudits of an admiring world which loaded him with honors, and these adorn a life which should be for each one of us an inspiration to new and better endeavor.

270 Woodward Ave.

PROPOGANDA FOR REFORM.

Valentine's Meat Juice.—Four years ago an examination by the Council on Pharmacy and Chemistry showed that Valentine's Meat Juice was not a meat juice, but had the character of a meat extract instead, while on the basis of the claim that it was a meat juice extravagant assertions as to its nutritive value were made. The product being a meat extract, was practically devoid of nutrient qualities. As Valentine's Meat Juice is still widely advertised the Council deemed a re-examination important. This re-examination shows that in general it has the composition now as then, and that the same unwarranted claims are still made for it (*Jour. A.M.A.*, May 2, 1914, p. 1419).

Lower's Germen Prescription.—This "consumption cure," hailing from Marion, Ohio, is sold under the claims: "The most Deadly Foe to the Great White Plague—TUBERCULOSIS—Science Has Yet Produced," "it takes from 15 to 30 large bottles of Germen Prescription to remove the tuberculosis poison," each bottle costing the victim two dollars. The composition of the nostrum is purported to be (in bastard Latin): "Herb Menthae preperitae, Herb Marrubium Vulgarac, Ex Balsanum Tolutonum, Herb Hydrastis Canadensis, Scillae Maratinia, Mentholis, Ex Virginiana Prunus, Ex Capsici Fas-

tiatum." An examination made in the A.M.A. Chemical Laboratory indicates that whatever therapeutic virtues this peppermint-horehound-cayenne pepper-menthol mixture possesses are due to the 1.83 gram menthol per 100 cubic centimeter which it contained. About the only effect produced by the mixture will be to derange the digestion of the person taking it (*Jour. A.M.A.*, May 2, 1914, p. 1418).

Pancreatin.—Long and Huhleman report that mere traces of hydrochloric acid will destroy the ptyalin of pancreatin, that pancreatin of commerce—which often is not pancreatin but merely the dried pancreas gland—is practically devoid of lipase, the fat digesting ferment, and that its tryptic ferment is likely to be destroyed by the action of the pepsin and hydrochloric acid during its passage through the stomach (*Arch. Int. Med.*, Feb. 1914, p. 314).

The Okola Laboratory.—The postmaster general has issued a fraud order against the Okola Laboratory, Inc., Rochester, N. Y., which sold a mail order treatment for weak eyes. The "laboratory" advertised that Dr. John L. Gorish "an able New York physician" and "an eminent medical man" had discovered a marvelous treatment for affections of the eye by which those who were wearing glasses or who should have been wearing glasses would do without them. The treatment consisted of three parts. Okola was the name of some tablets proven by the government to consist of baking soda and boric acid. The Okolator was a metal inhaler containing cotton moistened with a volatile liquid. The Okolizers were printed cards giving instructions for rubbing the eyes, etc. (*Jour. S.M.A.*, May 9, 1914, p. 1492).

Pa-pay-ans (Bell) now Bell-ans.—Bell and Company announce that Pa-pay-ans (Bell) is in the future to be known as Bell-ans. An examination of Pa-pay-ans (Bell) made by the Council on Pharmacy and Chemistry having failed to demonstrate the presence of papain, it is probable that the change of name was decided on to escape prosecution for misbranding (*Jour. A.M.A.*, May 9, 1914, p. 1492).

Bromidia (Battle and Co.).—A report of the Council on Pharmacy and Chemistry points out that while the name suggests bromid, Bromidia is essentially a chloral preparation. This nostrum illustrates the need of the Council's rule under which recognition is refused to pharmaceutical mixtures whose name does not indicate their most potent ingredients. While the chloral content of Bromidia has been given considerable publicity, yet the preparation is used both by physicians and by the public, without due consideration of its potent ingredient, as attested by the fatal results and the habit-formation which have resulted from its use. The Bromidia advertising propaganda first admits the presence of chloral, then it is argued that in Bromidia the evil effects of chloral are eliminated and in the end the impression is left that Bromidia is practically innocuous and may be given even in cases of typhoid and to children (*Jour. A.M.A.*, May 16, 1914, p. 1573).

Cirkulon.—The device "Pulsocon" which Gerald Macauro has exploited widely in England, is sold in this country as "Cirkulon" by the "Cirkulon Institute" of Kansas City, Mo. Gerald Macauro, according to the Associated Press, has been sentenced in France to serve a term of three years' imprisonment on a charge of fraud (*Jour. A.M.A.*, May 30, 1914, p. 1742).

TRANSACTIONS

OF THE

Clinical Society of the University of Michigan

Stated Meeting, May 20, 1914

The President, R. BISHOP CANFIELD, M.D., in the Chair
Reported by REUBEN PETERSON, M.D., Secretary

RADIOTHERAPEUTIC NOTES ON A CASE OF MEDIASTINAL TUMOR.

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In the present stage of interest in radiotherapy, stimulated by the study of the radio-active bodies, there has arisen a huge mass of literature on the subject of procedures in carcinoma, to the neglect of certain other branches of X-Ray treatment resting on quite as solid a foundation of facts which have been accumulating for over a decade. The gynecologist has been attracted by the fact that carcinoma of the uterus is especially radio-sensitive, and, next to epithelioma of the skin, probably more amenable to treatment than carcinoma in any other location. It is to gynecologists that we owe the recent developments in technic which have made possible the administration of relatively large doses of X-Rays to deep-lying structures. Meanwhile, the demonstrated value of the ray in such conditions as Hodgkins, leukemia, tuberculosis, lymphadenitis, lymphosarcoma, etc., have been forced upstage and out of the limelight. It seems pertinent therefore, by a concrete example, to call attention to the effect of radiation upon a mediastinal neoplasm.

Mr. E. B. aged 28—was referred to the Hospital for diagnosis, with the complaint of pain in the left thorax, cough and swelling of the neck, face and arms.

In January, 1913, after an exposure, he first felt thoracic pain, which limited respiration, and radiated down the left arm. There was some cough without expectoration. The pain was not affected by position or aggravated by exercise. Four weeks before entrance, on October 15, 1913, after a lifting strain, his neck and arms became swollen and his condition much aggravated. The temperature was 99.8° his pulse 120 and inspirations 24, on entrance;

blood, urine and sputum examinations were negative and remained so except for a temporary flurry during an acute intercurrent infection.

On physical examination, he presented the signs of an interthoracic tumor with obstruction in the venous return flow from the upper extremities, slight exophthalmos, and beginning laryngeal paralysis. The cardiovascular signs of aneurism were absent and his Wassermann reaction negative.

On the 10th of October, while an out patient, he was fluoroscoped, and the diagnosis of mediastinal tumor confirmed. On the 16th, this finding was verified by stereoscopic radiograms, and a probable diagnosis of aneurism recorded. On the 25th of October, X-Ray treatment was begun with prompt improvement in the symptoms and signs.

The treatment was pushed to the tolerance of the patient's skin, at first on alternate days through five "ports of entry" on the "cross fire" principle. By November 16, 1913 he had received over twelve erythema doses (53 H.) of the hardest rays possible with our equipment, in ten sittings and twelve exposures. He was then discharged to return in two weeks.

He returned December 1, reporting that he had been feeling perfectly well, the only remaining symptom being a sense of pressure on hearty laughing. The subsequent course of treatment consisted of nine erythema doses in six sittings. The series was interrupted by a recess of three weeks for the holidays. During these three weeks his symptoms had returned to some degree and a comparison of the orthodiagram showed a relative increase of the shadow, especially to the left above.

During the next six weeks he received twenty-five E. D. in twenty sittings with a remarkable improvement in the plate and the orthodiagram.

On April 9th, he returned with renewed complaints, having fainted twice and having considerable pain and dyspnea. Treatments were resumed with a prompt disappearance of all signs. Since this time thirty-one E. D. have been given in fifteen sittings, and the patient is free from complaints.

This simple recital of the facts entirely fails to carry the impression of improvement which you gain from a clinical study of the case. The most striking feature is perhaps the disappearance of pain with the beginning of irradiation. This is, however, so common an observation in cases of malignancy, as to be the rule, and has invariably led to an over-estimation of the therapeutic effect of the ray. That an actual reduction of the size of the mass has taken place cannot be doubted from the evidence of the disappearance of venous congestion and the radiographic evidence. Superimposed tracings from plates and orthodiagrams uniformly demonstrate a reduction in size under treatment and an increase during the recesses.

Reports of improvement in sarcomata under radiotherapy are not very rare. Pfahler of Philadelphia has recently reported a series of sarcomata of the extremities without recurrence over a period of years. These are for the most part favorably situated.

Modern methods of intensive irradiation with carefully controlled dosage and quality of rays have not been extensively applied to this class of neoplasm, nor has a sufficient time elapsed to give us a fair idea of the effectiveness of such methods.

Naturally the aim of radiotherapy is the destruction of all the neoplastic cells in the organism and anything short of this must be ultimately futile. That this may actually be accomplished is shown by numerous isolated examples in the literature, that it is difficult follows from the comparatively small number that will stand the test of time or microscopic examination. Wide differences in radiosensitivity evidently exist between similar growths in similar organs. Moreover, equally wide differences exist between different cells in the same neoplasm. Thus, some growths are absolutely refractory from the beginning of treatment, while others, after apparently doing well for a time, later progress in spite of the most vigorous treatment, sometimes with an enhanced rate of growth. The obvious interpretation of these facts is that after the vulnerable cells have been destroyed they are replaced by descendants of the resistant individuals, which, inheriting the resistance of their ancestors, entirely change the radiosensitivity of the growth.

With reference to the case under discussion, we can only say that he has repeatedly reacted in a remarkable and unmistakable manner to the X-Ray. He has received no other medica-

tion during the entire period. He is now receiving the largest doses of the most penetrating rays at our command, and he has been living in comparative comfort since October. The mass has not entirely disappeared, in fact appears to be about stationary at the present time. Three things may happen in the future, the tumor may become refractory, metastases may develop, or a cure may result, and in about that order of probability. The fourth alternative of the establishment of a condition of equilibrium between the destructive and the constructive tendencies may be dismissed, since the repeated application of the ray to other structures is certain to result in serious damage of some sort. Indeed, the tolerance of the skin places a very definite limit to the aggregate amount of X-light that may be given with impunity. What that limit is we do not know nor are we certain that we shall know when we have exceeded it. In the meantime, we shall continue to apply the rays as long as we dare, for we dare not quit.

PITUITRIN IN OBSTETRICS, WITH AN ANALYSIS OF FORTY CASES.

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It will always be the tendency for the practitioner of medicine to greet with enthusiasm any new preparation that may give him a certain amount of control over two very uncertain factors in obstetric practice, namely, the time of onset of labor and the strength and regularity of uterine contractions. Dale, in 1905, was the first to show experimentally that extracts of the posterior lobe of the pituitary body markedly influenced uterine contractions. It remained, however, for Bell in 1909 first to take practical advantage of this fact and apply it to his obstetric practice. Since this time extracts of the pituitary body have been marketed by various pharmaceutical houses. For obstetric purposes these preparations have been prepared in liquid form in ampules and in ounce vials, each cubic centimeter representing from 0.1 to 0.2 grams of the fresh posterior lobe. The preparation of Parke, Davis & Co., "pituitrin," has been used in all cases cited in this paper, one cubic centimeter being equivalent to 0.1 gram of the fresh gland.

Administration and Dosage.—It was found that the best results are obtained by intramuscular injections as the effect is likely to be delayed if given subcutaneously. It should also be remembered that administration by mouth should not be employed as the digestive juices destroy the activity of the preparation. The

question of proper dosage has been a matter of some debate, the German investigators using large doses, at times as high as a gram as an initial dose with apparently no ill effects. In this country Humpstone recommends 0.4 grams (4 cc. pituitrin) as the initial dose, repeated every twenty minutes for three doses when necessary. Edgar also says that for decided action 0.4 grams is usually required as an initial dose. On the other hand Hofbauer and others conclude that 0.1 grams is sufficient in most cases and that in many cases 0.05 grams will have the desired effect. It has been our experience that from 0.1 to 0.15 grams will produce the required result in most cases, and that this dose may be repeated if necessary twice or three times. Occasionally a patient will fail to respond to repeated doses of pituitrin. This may, in some cases, be due to the fact that the preparation is old and inert but the fact remains that even with absolutely fresh pituitrin at times the desired results are not forthcoming. The action of large doses of pituitrin during the first and second stages of labor is, in our opinion, comparable to that produced by ergot, inasmuch as the contractions are so rapid that in reality a tetanus uteri is produced.

Induction of Labor at Term.—The use of pituitrin to induce labor at term has not, in the hands of most observers, been at all successful, and at present it is quite generally conceded that the results are very uncertain. Our experience is tabulated below, all cases being at or over term.

PITUITRIN TO INDUCE LABOR AT TERM.

Case No.	Dose cc.	Interval mins.	No. of doses	Results
III	1	20	3	None
VI	1	25	3	None
VII	1	25	3	None
XI	1½	15	2	None
XIV	1½	15	2	None
XV	1½	15	2	None
XVIII	1	15	3	None
XIV	1	15	3	None
XXXIII	1½	30	2	None
XXXIV	1½	30	2	None
II	1 (Pains began in 8 min. and continued until delivery)			Good
V	1 (6-8 painful contractions after the first dose. No result after the second dose)	30	2	

From the above table it will be seen that of twelve patients given pituitrin with the idea of inducing labor, ten showed no result from the injections, one had a few pains but did not go into labor, and in one, labor began eight minutes after the injection of one cubic centimeter of the preparation. In only one case was the desired effect obtained, that is, in Case II. This patient was due February 3rd, and the hypodermatic injection of one cubic centimeter of pituitrin was given the morning of February 5th. Lightening had occurred ten days previously but the patient had no signs or sugges-

tions of beginning labor. In none of the patients was any ill effect noted following the administration of pituitrin.

In the First Stage.—In all our cases, aside from those in which we attempted to induce labor at term, pituitrin has been given only in the presence of sufficient indications and has not been used simply as a means of hastening normal labor. If this plan is carried out but few cases will require the preparation in the first stage. Serious ill effects have been reported from time to time from the injection of pituitrin in the presence of a partially dilated cervix. Herz reports a case of uterine rupture after the injection of one cubic centimeter of pituitrin, with the cervix dilated to the size of only two fingers, tetanic contraction ensuing in twenty minutes, and concludes that pituitrin should not be given in the presence of an insufficiently dilated cervix. Rieck reports a case of tetanic contraction requiring craniotomy to deliver the child. Heil and Mackenrodt both record cases in which cerebral as well as uterine contractions occurred after the administration of pituitrin in the first stage of labor. It is justifiable to give pituitary extract in the first stage only in exceptional cases, never as a routine. The following case may serve to illustrate an exception.

CASE XXV. Primipara, normal pelvis. Position S.L.A. The membranes had ruptured at the beginning of labor, which had continued for thirty-one hours. The pains throughout had been weak and inefficient. Morphine sulphate, grains one-fourth, was given hypodermatically with the hope that after a rest the pains would become stronger. The pains, however, after morphine, continued weak and the patient was becoming very tired. Rectal examination showed the cervix three-fourths dilated, and easily stretched to the pelvic wall. The fetal heart was in good condition. One and one-half cubic centimeters of pituitrin were administered. In six minutes the pains had become strong and regular and the child was born spontaneously in forty minutes from time of injection.

In the Second Stage.—It is in the second stage that the best results are obtained with pituitrin. The following table gives the results of our experience.

Nineteen cases were carefully observed in all. Of these fourteen patients delivered themselves spontaneously after pituitrin in the presence of sufficient indications for its use, which in twelve cases were weak and inefficient pains and in two cases moderately contracted pelvis. Thirteen of the fourteen cases were primiparae and in many of these there was sufficient indication for low or mid forceps before the pituitrin was given. Some idea of this can be gained by an inspection of the following table. That pituitrin

Case	Length of Labor before Pituitrin Hrs. Min.	Length of Labor after Pituitrin Hrs. Min.	Length of 2nd stage after Pituitrin Min.	Dose in cc.	Time to act Min.	Pelvis	Para	Remarks
Case 3	17° 25	1° 40	30	1	5	Normal	1	
Case 4	11°	4°	Low forceps	1	5	Normal	1	Low forceps for fetal indication.
Case 8	32°	3°	Mid forceps	1	No result	Normal	1	No result from pituitrin
Case 9	22°	2° 30	Mid forceps	dos. 3	5	Normal	1	Mid forceps for fetal indication
Case 10	4° 25	2° 30	35	1	6	Normal	1	
Case 12	27°	1° 40	15	1	4	Normal	1	
Case 13	23° 15	1° 15	15	1	5	Simple funnel	3	Bisichial diam. 8 cm
Case 16	8°	1° 45	30	1½	3	Normal	1	
Case 17	32°	3° 50	25	1½	5	Flat funnel	1	Ext. conj. 17.5 cm
Case 20	8° 55	1° 55	1°	1	10	Normal	1	Bisichial 7.5 cm
Case 22	16°	1° 50	46	1½	6	Normal	1	
Case 23	14°	2°	8	1	3	Normal	1	
Case 24	8° 30	1° 40	30	1½	5	Normal	1	
Case 26	3° 30	1°	38	1	10	Normal		
Case 27	17° 25	1° 40	30	dos. 2	6	Normal	1	
Case 28	19° 20	1°	20	1	7	Normal	1	
Case 29	67° 40	30	20	1½	5	Normal	1	
Case 31	15° 20	20	Version and Extraction	dos. 1	5	Normal	2	Version and Extraction for fetal indication. No result from pituitrin.
Case 37	8°	1°	No result	dos. 2	No result	Normal	1	No result from pituitrin.

markedly shortened the course of labor, and in many instances rendered the forceps operation unnecessary we cannot doubt when we consider that;

(1) The average length of labor before pituitrin was 19 hours 2 minutes.

(2) The average length of second stage before pituitrin was 1 hour 32 minutes.

(3) The average length of second stage after pituitrin was 28 minutes.

Furthermore the average dosage to effect delivery was one and three-sevenths cubic centimeters and in only one case were two doses of one and one-half cubic centimeters required, while in nine cases one cubic centimeter was sufficient for spontaneous delivery. The average length of time elapsing from the administration of pituitrin until the establishment of steady pains was 5 minutes 42 seconds, the shortest time being three minutes, the longest ten minutes. In the light of these findings we are forced to disagree with Humpstone, Edgar and others who advise a large initial dose, as, in our experience, one to one and one-half cubic centimeters have been amply sufficient. Still further we have found that cases which did not react at all to small doses (1 to 1½ cc) also often fail to react on repetition of the dose two or three times at frequent intervals. (See Cases, VIII, XXXVII, XXXI).

In some cases the pains were increased only in intensity and duration, in others they were markedly increased in frequency as well as in

duration. No difficulty was experienced in controlling the head under obstetric anesthesia. It is our belief that pituitrin should not be given during the second stage until all preparations for delivery are made, as labor may terminate very quickly. (See Case XXIII). The results in two cases with slightly contracted pelvis were most gratifying, both patients being delivered spontaneously 15 and 25 minutes respectively after one dose of pituitrin. (See Cases XIII and XVII).

Patients, IV and IX, were given pituitrin after very slow advance of the head during second stage; in both cases strong pains with some advance of the head occurred in five minutes but on account of the fall of the rate of the fetal heart, low forceps was done in the former and mid-forceps in the latter. It is probable that in the presence of no fetal indication both patients would have ultimately delivered themselves. As it was, Case IV was undoubtedly changed from mid to low forceps, and Case IX from high to mid forceps by the use of pituitrin. From a study of these cases it would seem that pituitrin can well be used as an adjunct to the forceps operation with the idea of making operative delivery easier.

Three patients, VIII, XXXI and XXXVII showed no results after the administration of the preparation, patient VIII being given three doses of one cubic centimeter each and patient XXXI and XXXVII being given two doses of one cubic centimeter each. In each instance the

pituitrin was fresh, the patient free of fever and the injection given intramuscularly.

In Abortion.—In two cases pituitrin was given in inevitable abortion at the sixth month.

CASE I. Age 23, Para. 11. Normal pelvis. Position R.O.A. Six months pregnant.

Patient began bleeding rather freely at midnight. Pulse rose to 100. Fetal heart could not be heard. No quickening for past two days. Patient put to bed but was having no pains. Bleeding continued until 10 P. M., when vagina and cervix were packed with gauze. The cervix was dilated to admit about three fingers. After packing, the pains began irregularly. Pituitrin one cubic centimeter administered and repeated twice at intervals of twenty minutes with slight increase in pains five to six minutes after injections but not enough to cause expulsion.

CASE XXI. Age 25, Para. 7. Six months pregnant.

Patient entered Hospital in labor six hours. Examination showed pregnancy about six months, cervix dilated to admit three fingers; prolapsed, non-pulsating cord. The pains continued intermittently for an hour and finally stopped. Pituitrin one cubic centimeter was given and in six minutes the pains were strong and regular, a six months dead fetus being delivered in one hour.

In Case I the results were practically negative, while in Case XXI they were all that could be desired. It must be remembered, however, that in Case I while the cervix was dilated to admit three fingers the patient had had no labor pains, while in Case XXI with the same amount of dilatation pains had been present for six hours. Authorities seem to agree that we can expect no results from pituitrin in the induction of abortion, but that once started the clinical course of the latter may be shortened by pituitrin.

In Postpartum Hemorrhage.—In the treatment of postpartum hemorrhage the results are good but not better than those obtained by the use of ergot. Repetition of the dose is often required. We have noticed that the action of both pituitrin and ergot is augmented by previous injection, with the former of ergot, and with the latter of pituitrin. This has been illustrated by several of our cases in which pituitrin was given with apparently no effect but immediate contraction followed the subsequent injection of ergot, and vice versa.

In Cesarean Section.—Case XXXVI. Pituitrin was given in one case just before making the incision for abdominal Cesarean section. The uterus began to contract almost immediately. After delivery of the child the contractions were so strong that the posterior uterine wall and placental site were forced into the incision in the anterior wall. This greatly

hindered the removal of the placenta and membranes and rendered the placing of the uterine sutures somewhat difficult. There was, however, very little hemorrhage. The child was rather badly asphyxiated but was finally resuscitated. As the patient was not in labor and the abdomen was opened under primary ether anesthesia it would seem that the asphyxia neonatorum was probably due, as suggested by Edgar and others, to compression of the placental site with coincident hypercarbonization of the fetal blood. Pituitrin, then, if used in Cesarean section as a substitute for ergot should not be given until after delivery of the child. Even then strong contractions may interfere with the suturing of the uterine wall.

Pituitrin and Blood Pressure.—In 1895 Oliver and Schafer showed experimentally that injections of extracts of the pituitary body were followed by rise in blood pressure and drop in pulse rate. In 1898 Howell demonstrated that it was the posterior lobe that possessed this property. Since that time investigators have fairly well agreed that clinically also such injections of extracts of the posterior lobe are followed by rise of blood pressure and slowing of the heart rate. This is undoubtedly true in some, perhaps in the majority of cases, but it has been our experience that rises in blood pressure and drop in pulse rate do not always follow injections of pituitrin. Cases XXXIV and XXXIX, illustrate what is usually supposed to occur. Cases XXXIII, XXXVIII, and XL give contradictory findings.

EFFECT OF PITUITRIN ON BLOOD.
Pressure and Pulse Rate.

Case	34		38		33		39		40	
	BP.	P.	BP.	P.	BP.	B.	BP.	B.	BP.	B.
Before	116	72	110	100	120	80	102	92	126	100
After 5	136	64	110	120	138	92	106	80	120	104
After 10	136	64	90	120	138	94	104	88	110	112
After 15	130	68	98	112	134	92	102	92	120	116
After 25	124	70	105	100	130	90	102	92	120	106
After 35									120	100

In Cases XXXIV and XXXIX the blood pressure rose after pituitrin, although the rise in Case XXXIX was so small as to be negligible, while the pulse rate was slowed in both cases. In Cases XXXVIII and XL there was an actual fall of blood pressure and the pulse rate was increased; exactly opposite results from what we would expect from the literature, while in Case XXXIII there was a rise in blood pressure but a corresponding rise also in the rate of the pulse. The results from pituitrin as regards increase of blood pressure, therefore, are not at all constant, and in some cases there is an actual fall in pressure.

Pituitrin and Urination.—Diuresis after pituitrin was noticed by Dale, Bell, Howard, Ott and others and seemed to be secondary to a rise in blood pressure. Loeb states that a

second dose of pituitrin fails to change the blood pressure but causes a marked diuresis. He therefore concludes that pituitrin has a specific action on the kidney outside of that on the blood pressure. However, a diuresis alone is insufficient to account for the reports of Quigley and others to the effect that postoperative and postpartum catheterization are rendered almost unnecessary after pituitrin. This can only be explained by the effect on the involuntary bladder muscle itself. From our series we are not justified in drawing definite conclusions but it is significant that of twenty-three patients given pituitrin during labor catheterization was necessary postpartum in only four instances, and in one of these (Case VIII) we failed to get results from pituitrin in the second stage. When we consider that the patients were primiparous in all but two instances, that labors were difficult in most cases and that there were four operative deliveries the percentage of patients requiring catheterization would seem small.

Untoward Effects.—We are not prepared to agree with those who state that the use of pituitrin is never followed by ill effects. Among our cases, III, XVI and XXXVI were followed by marked asphyxia livida in the child. All children were subsequently revived. It is probable that this is due, as has been mentioned previously, to severe compression of the fetus, particularly of the head and to hypercarbonization of the fetal blood from constriction of the placental site. Premature separation of the placenta occurred in none of our cases, neither did we find severe postpartum hemorrhage more likely to occur. We have not seen tetanus uteri and think it not probable, provided a small initial dose is given, although in some cases the pains come in quick succession. Rupture of the uterus is not likely if the cervix is dilated and there is no serious obstruction to labor.

In four cases, XXXIV, XXXVIII, XXXIX and XL, the patients complained of feeling faint very shortly after injection. The lips became cyanotic and there was a cold sweat over the brow and extremities. Patients XXXVIII, XXXIX and XI also complained of nausea, while in case XL there was moderate headache and irregular pulse. Heaney reports the same experience with one of his cases.

Conclusions.—In conclusion we may say that:

(1) Pituitrin is best administered intramuscularly.

(2) The initial dose should not exceed one to one and one-half cubic centimeters. Large doses during labor are equivalent to ergot and should not be given.

(3) In induction of labor at term the results are not satisfactory.

(4) In the presence of an undilated cervix pituitrin should be given only in exceptional cases.

(5) The best results are obtained in the second stage of labor.

(6) In an occasional case the preparation is apparently inert.

(7) It should not be given in the presence of serious obstruction to labor.

(8) In moderately contracted pelvises and especially in outlet contraction the results are good.

(9) The forceps operation may often be averted or rendered easier by the proper use of pituitrin.

(10) In Cesarean section pituitrin should not be given before delivery of the child.

(11) The effects on pulse and blood pressure are not constant, but pituitrin should not be used in conditions associated with high blood pressure.

(12) Urination after delivery seems to be facilitated.

(13) The administration is sometimes followed by untoward symptoms.

(14) In postpartum hemorrhage the results are not better than those obtained by the use of ergot.

(15) Pituitrin has no place in normal obstetrics, and should be given only in the presence of sufficient indication, e. g. inertia, moderately contracted pelvis, etc.

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REPORT OF (1) A CASE OF LYMPHANGIOMA CIRCUMSCRIPTUM.

(2) A CASE OF LOCALIZED SCLERODERMIA.

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The case which I wish to present this evening is one of unusual interest and one of extreme rarity. It is the second case of its kind to have occurred in this clinic and one of the very few which it has been my opportunity to see and study. The lesions, as you see them, occur on the side of the neck. They appear in the form of split pea sized, translucent lesions, in which there is fluid. Over the surface of most of them you will note the presence of dilated blood vessels, giving at first glance the impression that hemorrhages had occurred into the fluid content of the lesions. The lesions are distinctly grouped. Attention is called to the fact that there is no inflammatory reaction near or about them. Just above the group of lesions there are to be noticed a few depressed scars. These the patient states are the result of burning with carbolic acid, which was applied a number of years ago in the hope of destroying the condition.

In the differential diagnosis we have to consider herpes zoster, herpes simplex and the condition under discussion, lymphangioma circumscriptum. The absolute absence of inflammatory reaction and the apparent quiescence of the lesion, its duration over many years, unchanged, easily serve to differentiate it from either herpes simplex or herpes zoster.

The varicosities of the superficial lymph vessels and spaces are rare forms of tumors, as in this case, they are usually pearly or pinkish red, thick walled vesicles, many of which have minute telangiectases in association with them, and in many of which there may even be true angiomas of the cavernous type. Histopathologically one finds in such cases dilatation and new growths of the lymph channels, which appear as large spaces in the cutis extending up into the epidermis, causing a pressure atrophy of the latter, these spaces all being lined by endothelium. Spontaneous rupture may give rise to continuous leakage of lymph, but unless the growth is radically excised, simple interference or excision into the lesions gives rise to recurrences. We have decided in this case, at the patient's request, to remove the growth by excision, which offers the best cosmetic result for the patient and at the same time offers an op-

portunity for pathologic study of a rare condition.

Case 2. Localized Sclerodermia.—The second case which I wish to present is one again in which the differential diagnosis is both important and difficult. The patient presents over the skin of the right breast a firm, ivory white, indurated patch. This, as you will note, is rather irregular on the border and the surface is somewhat glistening. It is distinctly lardaceous to the palpating finger and stops rather abruptly at its free margin.

The lesion resembles, I think, somewhat closely the infiltration that occurs in the skin from breast carcinoma. There are many features on close examination which speak against this diagnosis. In the first place I should like to call attention to the fact that neither the nipple nor the areola is involved in the disease process. The lesion, as you note, completely encircles both the areola and the nipple, without, however, in any way involving them. There is also no involvement of the deeper breast tissues and there are no enlarged glands in the axillae. The mass is painless and there is complete absence of any inflammatory reaction.

The case is presented to you as one of typical morphoea, or localized sclerodermia. These patches are usually found anywhere on the body. Their etiology is obscure and their pathologic change is like that of true sclerodermia, principally associated with vascular obliteration. Dr. Stokes is at this moment studying the histopathology of morphoea this case being the third, which we have had the opportunity of studying during this past year.

The lesions usually start as small, indurated, ivory white patches with a distinct hyperemic border. They may disappear spontaneously and when this occurs they are usually followed by atrophy of the skin involved. The patches may be multiple or single. In my experience the lesions have more frequently been two or three in number. Therapeutically there is nothing which seems to influence them, nor is there any marked indication for treatment as the disease seldom carries an unfavorable prognosis with it, so far as life is concerned. This of course distinguishes it from the generalized form of sclerodermia.

REPORT OF TWO CASES OF AMEBIC DYSENTERY.

HARRY BURKE SCHMIDT, M.D.

(From the Department of Internal Medicine, University of Michigan).

The first patient, Mr. T. T., age 38, publisher, married, American, entered the University Hospital on March 15th, 1914, complaining of weakness, flatus and recurrent attacks of diar-

rhea of fifteen years duration. The family and personal history are negative. He has been in St. Louis, Mo., for a few days, Jacksonville, and St. Augustine, Florida for ten days, otherwise has always lived in Michigan. The present illness began fifteen years ago with nausea after eating. This lasted for a month at which time he was very nervous and overworked. He vomited occasionally. There was an insidious onset of diarrhea a year later and since this he has never had a formed stool. The stools have never been clay or tar colored. He has never noticed any pure blood in the stools, but considerable mucus. His appetite has been more or less capricious, though there is no history of indigestion. He has not been indisposed enough to go to bed. He has lost fifteen pounds in the last fifteen years. The physical examination is negative. There is nothing seen in his rectum to explain his trouble. On examination the stools are of a yellowish fluid consistency with some undigested food particles and considerable mucus. No microscopic blood was observed. The occult test has been repeatedly positive. Microscopic examination disclosed swarms of *trichomonas intestinalis*, a few red blood cells and three ameba with very rapid ameboid motion. One of the organisms was observed for a considerable length of time. It was not over sixteen microns in diameter; the movement was progressive and very rapid during which the ectoplasm and endoplasm could be easily distinguished. The organism finally came to rest, at which time the nucleus could be discerned as a small refractive body with an apparently thick capsule. The organism at rest was perfectly spherical and the ectoplasm and endoplasm could not be differentiated; there were many fine granules which began to circulate first in one direction and then in an opposite direction about the periphery of the cell. At this stage the observation was discontinued. At no time were any red blood cells seen in the ameba. Stomach, urine, blood and blood pressure were negative.

The patient was placed in bed on a finely divided diet with emetin hydrochloride, hypodermically, one-sixth of a grain, three times a day. Under this treatment his stools have become formed, and the mucus has entirely disappeared. The patient was discharged May 19, 1914, apparently well.

CASE 2. The second patient, Mr. L. M. age 29, American, single, entered the Hospital on March 30th, complaining of bloody diarrhea. His family and personal history are negative. He has never been out of the state of Michigan excepting for a few days in Windsor, Canada.

The present illness began August 15, 1913 with a sudden onset of bloody diarrhea. His previous health had been good. Since this time he has had from five to six bloody stools a day accompanied by griping pain. During this attack he had no fever. After two months of rest in bed he lost sixty pounds. Under further treatment he regained this weight and became apparently well. The second attack began March 15, 1914, the complaint being the same as before with the exception that he has had an afternoon temperature each day. The physical examination is negative. Examination of the blood shows 3,720,000 red blood cells, 19,200 white cells and 65 per cent. hemoglobin, 75 per cent. polymorphonuclears, with 5 per cent. eosinophiles, 20 per cent. mononuclears. The urine and blood pressure were negative. The rectal mucous membrane has a red beefy appearance with numerous pin point bleeding spots, no ulcers being seen. The stools are of a fluid consistency and of a dark red color. There is considerable mucus. Microscopic examination shows numerous red blood cells, large numbers of ameba with slow ameboid motion. The organisms while at rest have a relatively large nucleus with a coarse granular endoplasm. The ectoplasm is not made out. However, the ectoplasm could be seen during the movement. No red blood cells were seen in any of the organisms. A diagnosis of amebic dysentery was made in this case, because of the ameba found in the stools and because no other condition could be found to explain the symptoms. Tubercle bacilli were looked for but none found. From the description of the above organism one would be inclined to include it under the nonpathologic entameba.

No cultures nor stains were made for the purpose of differentiating the organisms. It takes a trained biologist to be at all sure of the classification of these organisms, but in any given case of unexplained diarrhea with ameba in the stools, it would be advisable to treat the case as amebic dysentery.

The use of emetin hydrochloride in amebic dysentery has been wide spread in the past year or two. Many good results have been reported. As much as four grains per day has been given without untoward symptoms. Our first patient apparently had a very good result from this treatment. The improvement in the second case has been almost nil, about the only change to be noted being the diminution in the amount of blood, and this may be explained by the fact that emetin causes tonic contraction of non-striated muscle and constriction of the arterioles.

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Editorials

THE TREATMENT OF COMMON DEEP-SEATED SUPPURATIVE PROCESSES IN THE HAND AND FINGERS.

The observant physician cannot but be impressed with the scant attention and superficial treatment which these important pathological conditions receive in the every day practice of physicians and he has but to spend a few weeks in any of the large surgical clinics to see many of these cases which have been under previous treatment and where no attempt has been made to evacuate the pus, or where the incisions have been wrongly placed. Failure to impress on patients the gravity of these lesions is responsible for the fact that the pantry-shelf with its cranberry poultice has largely supplanted the dressing cabinet of the physician in the earlier amenable stage of these cases. Surely it is important to give to a laborer a useful hand by which he may earn his daily bread and particularly so since careless or incompetent treatment will almost assuredly result in a useless, or, at the best, in an inefficient hand and on the contrary, timely and competent treatment will almost as surely result favorably.

The patient, usually a farmer or laborer, presents himself at your office carrying his hand in an elevated position on account of the pain. Now the first thing to do is to cleanse the part thoroughly of the inevitable "chew of tobacco" or greasy smear of Smith's, Jones's or Brown's salve to which these patients almost invariably resort and this is best done by washing thoroughly but lightly with a piece of soft gauze

and some warm water and a good preparation of liquid soap. After drying the part with a soft piece of dry gauze you are now ready for an examination of the part which cannot be properly made under any other conditions. Note first the position of the swelling—whether it be confined to the distal part of the finger, or is present in the whole finger, the hand or even in the wrist just above the annular ligament. Next locate the pus: this is the keystone of the treatment and failure to locate and evacuate it is almost certain to prove more or less disastrous. Palpate the swelling lightly with your forefinger and you will come upon some point where the patient flinches decidedly, also you will here detect greater resistance than in the surrounding parts. These are valuable signs as they show the presence of pus early and when it is deep seated and small in amount.

If the swelling be confined to a point beyond the terminal joint of the finger, there is only one situation which pus will likely occupy and that is in the subcutaneous tissue on the flexor side of the finger. The tendon sheaths are not in much danger here as they extend scarcely past the base of the last phalanx. Very rarely caries of the tip of the phalanx occurs due to a neglected infection. In these cases evacuate the pus through a transverse incision along one of the natural lines on the front of the finger. This transverse incision gives good drainage.

If the swelling be in the finger between the terminal joint and the hand, pus when present may be inside the tendon sheath, in the subcutaneous tissue or in the joint. In these cases the only safe way is to consider the treatment in the light of a surgical operation and put the patient under a general anaesthetic. Render the arm bloodless by elevation and apply four or five turns of a rubber tourniquet above the elbow. Never turn a rubber bandage spirally up the arm as it is almost sure to spread the infection. Make an incision about one inch long at the point of infection dividing the tissues layer by layer, and retracting each layer as it is cut so that you see exactly where you are as you proceed. If the pus be found outside the tendon sheath simply satisfy yourself that it has free exit. If the tendon sheath be exposed examine it and see if it is distended with fluid; if it is not, leave it alone; if it is, open it with an incision half an inch long. If the case is seen early, or if there is no swelling and tenderness in the hand, this will be all that is necessary. If, however, the hand be badly swollen and tender, the infection has probably traveled up the tendon sheath and a palmar abscess is present and must also be opened and drained. To attain this end in the case of the first, second and third fingers make an incision about one inch long with its center over the metacarpo-phalangeal joint down to the tendon

sheath treating it in the same manner as in the digital incision. This palmar incision should be made even when the swelling in the hand is more marked in the back of the hand than in the front as the only reason the swelling does not appear in front is because it is bound down by the tense heavy palmar fascia. When the infection originates in these fingers it is not liable to extend past the palm as their tendon sheaths terminate there but the tendon sheaths of the thumb and fourth finger extend up into the wrist. When suppuration originates in the thumb or fourth finger we are apt to have a much more complicated condition to deal with and three incisions may be necessary—a digital incision at the point of infection, a palmar incision and an incision into the wrist. To reach the flexor tendon for the thumb in the palm, make an incision on a line with the inner surface of the thumb when the first phalanx is fully extended on the metacarpal bone. In the wrist one readily reaches the tendon of the thumb by cutting down on the inner side of the tendon of the flexor carpi-radialis which is the outermost tendon of the two prominent ones on the front of the wrist. The incision should begin at the lowest transverse crease and extend upward one inch.

The palmar incision in the case of infection extending from the little finger is, I think, best made over the meta-carpo phalangeal joint as in the case of the remaining fingers, carefully avoiding the digital branches of the median and ulnar nerves. Many advise it to be made higher up just above the head of the metacarpal bone and extending up to the annular ligament but in doing so one has to ligate and divide the superficial palmar arch.

In the wrist you have to expose the tendons of the profundus and sublimus. This incision begins at the lowest transverse crease of the wrist and extends upward about an inch and a half and is made along a line one third of the distance from the ulnar to the radial side which will be a little to the radial side of the tendon of the flexor carpi ulnaris which is a good landmark to look for and which can be told by its terminating in the pisiform bone. Pus will be found somewhere in among the bundle of flexor tendons sometimes even below the profundus tendons, between them and the pronator quadratus muscle.

In any and all of these incisions, digital, palmar or in the wrist, the abscess cavity should be sponged out clean with gauze moistened with saline solution, and the whole wound above the tendon sheath lightly packed with gauze and a dressing consisting of ten to twelve layers of gauze loosely applied by means of a gauze bandage and the hand placed in a sling. This dressing should contain no impervious material such as oiled silk etc. and should be kept constantly

moist with warm saline solution in order that the pus may drain out thoroughly by capillarity. The dressing should be changed once or twice a day according to the amount of discharge and the gauze should be left in the wound for three or four days until it loosens. As granulations form, in say about a week, a dry dressing may be substituted and by the time the wound has become healed so as to be superficial, light easy motion of the part should be made.

The other important situation pus may occupy viz. in the joint, results from penetration by a foreign body as a pin, needle, nail, etc. These cases can be diagnosed by pressure on the tip of the extended finger causing pain and also by the fact that in two or three days after receiving the injury, a sticky tenacious discharge will occur through the wound which is, of course, the mucin from the joint cavity or a bursa. In these cases make a posterior incision into the joint and secure free drainage by inserting a piece of gutta percha tissue which should be left in until the discharge consists only of a few drops. Apply a light gauze dressing and splint the finger with a tin splint in as much of an extended position as the pain will permit. These cases are slow and treatment may have to be carried on for several weeks and the prognosis for a good joint is bad. Of course if dead bone exists it must be removed by scraping it away or by resection of the ends of the bones.

H. F. KILBERN.

PREVENTATIVE MEDICINE—THE PHYSICIAN'S RESPONSIBILITY.

At the very outset we must concede that Preventative Medicine at the present time is being carried out chiefly by health officers and our general practitioners—qualified both by education and experience to enlighten the people as to the methods of preventing disease—usually does but little in an endeavor to educate the public upon the subject of health and how it may be conserved by observing the rules of hygiene and preventative measures. True, here and there we find a faithful one disseminating the truths of preventative medicine but how few and widely scattered they are. The important advances made in recent years are demanding that the physicians assume an aggressive leadership in imparting this knowledge to the inhabitants of every community.

At the present time the laity is but little informed in regard to the prevention of disease. It is true that they avoid contact with those diseases which our boards of health quarantine. Few, but not all, know that typhoid is contracted from contaminated milk, water and certain food-stuffs. The public has some informa-

tion pertaining to tuberculosis by reason of the educational work that has been and is being done by the Anti-Tuberculosis organization. Beyond this the vast majority are possessed of comparatively superficial and limited knowledge in so far as health preservation is concerned. In the great majority of diseases they know practically nothing of their nature. Why? Because they are not aware of the extent to which preventative medicine has been developed and the advantages that are bound to accrue when they avail themselves of its teachings. Defective education is directly responsible for their lack of this knowledge. It must be imparted to them by the family physician.

In attempting this we will undoubtedly be asked what other diseases beyond those mentioned in public health acts can be prevented to a certain extent. By reason of limited space we can only mention a few of them which may be prevented to a marked degree and the reader will undoubtedly be able to add a considerable number to this list.

Pneumonia. This fatal disease is responsible for four times as many deaths as occur from typhoid fever. If the public were informed that exposure to cold, when physical resistance has been lowered by reason of over-work, worry, deficient nutrition, and defective hygiene and knowing, would observe the necessary preventative measures, its death rate would be reduced from 20 to 40 per cent.

Cancer, causing as it does, five per cent. of all deaths and until within the last two years practically nothing having been done to educate the public in regard to its nature, may be eliminated to a greater extent if we but inform the people that in its early stage it is invariably a local disease and curable at that time by proper surgical treatment. That often it is preceded by a benign lesion and that every such growth should receive the close attention of a surgeon. That leucorrhea, metorrhagia and pelvic visceral disturbance call for early examination to determine their exact nature. The Anti-Cancer Crusade is accomplishing a commendable work and its efforts merit the support of every physician.

Typhoid Fever may be prevented if one but submit to the now recognized prophylactic—typhoid vaccination. To how many of your people have you imparted this knowledge? It is not too late to materially reduce typhoid's mortality rate this summer if you will but enlighten your community as to how it may be prevented.

Arteriosclerosis leading, as it often does, to diseases of the heart, brain and kidneys may unquestionably be prevented if the average business man between the ages of 35 and 45 would place himself under the supervision of a physician. The same may be said of many of the gastro-intestinal diseases occurring as they

do by reason of errors in diet, nervous disturbances and defective teeth.

Thus might we continue down the list of present day ailments and disease and, were we but possessed of the time, point out more minutely how the health of the people might be better conserved. This, however, is not necessary as the facts available carry within themselves sufficient substantiating proof. It is conceded that many of our present diseases may be prevented by educating the public to employ and rigidly observe preventative measures. To educate them is a duty that rests upon the shoulders of the medical profession collectively and individually. The physician of today must and is in duty bound to disseminate this knowledge to the people of his immediate vicinity.

The physician of today is no longer worthy of the name when he considers that his only duty rests in the task of treating and alleviating the pain and suffering of those who are victims of sickness and disease—conditions that might have been prevented. The physician today is a social economic factor from whom the public is demanding advice that will enable them to prevent disease and sickness. The future is bound to reveal the members of our profession as potent economic factors, the real arbiters of the great body politic of society. The past has seen our influence less than it is today when almost every disease has been made to come out in the brilliant sunlight of scientific research. As we have become more and more the masters of disease we have come nearer to the mastery of the patient and through him the family and the society at large. Therein our future greatness will lie.

It will not be expected of us to dictate business adventures for grown up people, on the contrary, we will be charged with the responsibility of strengthening and shaping the body and the mind of the babe in the cradle, the boy in the school, the girl in the college and both on entering life's work. It will be our duty to read the physical index and decide how far the body may be depended upon with and without our help. It will be ours also to note the mental gauge and determine its strength and weakness, its shadows and sunbeams, its stability and variability and the direction of their roving and finally to guide, by imparting the principles of preventative measures, into those paths whose stepping stones are best suited to their stride and thus eliminate disease and disaster.

The physician could not ask for a firmer standing ground or a longer lever with which to move the world. Individually we must all recognize and learn this responsibility and daily impart this knowledge. As physicians we must of necessity treat disease but while so doing our

greatest duty is to teach how it may be prevented. The time is here, now, for us to assume this responsibility to a greater extent in Michigan.

THE LANSING MEETING.

During the past month it was our pleasure to attend a meeting of the several committees appointed by the Ingham County Medical Society to arrange for the 49th Annual Meeting to be held on Sept. 10-11 in Lansing. The information imparted to us causes us to unhesitatingly state that this is bound to be the best meeting in the history of our organization.

The hotel accommodations are ample. The Downey House, headquarters, during the Knights Templar Conclave in June, satisfactorily accommodated 508 guests. The Wentworth is able to care for 300 guests. Both of these hotels are rated as first class. The hotel accommodations are ample to accommodate comfortably 1000 guests.

All the meetings will be held in the Capitol Building, two blocks distant from the hotels. There are available auditoriums in this building so that ample room may be assigned to the four sections and the House of Representatives meeting room is ideal for the sessions of the House of Delegates and the General Meeting.

The men who will appear before the General Meeting and the several sections, as invited guests, are of national and international reputation. The section officers are preparing splendid programs. The Lansing profession are not overlooking the entertainment features.

It but remains for our members to avail themselves of the personal benefits that are bound to accrue if they but attend this meeting. Why should you attend? To you who have been accustomed to stay at home we submit the following opinions from representative men throughout our state. Their reasons are of weight and value and you cannot ignore their advice—read.

"WHY SHOULD I ATTEND THE STATE MEETING?"

"In answer to yours of recent date I beg to submit the following: Why Should You Attend the Annual Meeting in Lansing? First The physician needs the uplift derived from association with the best men in the profession. This meeting affords that opportunity.

Second: The most potent factor in the State in securing legislation for the betterment of the profession and the advancement of all that pertains to the medical welfare of our commonwealth, is the Michigan State Medical Society. It should be supported in every possible way.

Yours very truly,

C. N. SOWERS,
Benton Harbor, Mich."

"There are several reasons, one is: There is a good scientific program to listen to. Another, and equally important one is, I can meet my friends in

the profession again. I can get as much uplift from swapping experiences with you and Kiefer and the other fellows, in the 'tea room' at the Downey House as I can from the program.

Another reason is, Lansing is a good town. I was brought up there and helped make it so.

Your truly,

HERMAN OSTRANDER,
Kalamazoo."

"The man who does not attend regularly the State Medical Meeting is soon liable to have moss growing up his back. Several who attended their first state meeting in Flint said that they could not afford to miss another. It's the leading men in the community who are always present.

H. E. RANDALL,
Flint, Mich."

"Why Should You Attend the Annual Meeting at Lansing?' The pride a man has in his profession should lead him to support its organizations and take an interest in the work they are doing for the general good of his profession and the public.

At the meetings he comes in contact with men who are 'doing things' along particular lines. He will hear many sided views of the subjects discussed and will come away with a more comprehensive knowledge than any amount of reading will give him, and what is as important, more enthusiasm for his daily work.

You should go for what you can give and what you can get. 'Who gives most, gets most.'

W. J. KAY,
Lapeer, Mich."

"Why should you attend the meetings of your State Society?

Granting that, as many will tell you, you can read the papers and the discussions at your leisure, is it not worth while to meet your brother practitioners and absorb a few of their good points? There is nothing that will broaden a man more than association with his fellow-men. What you learn about medicine and surgery at a medical meeting is the smallest part of the meeting. It is the unwritten things that help to make a man of you.

Get the 'Society Habit' and you will never regret the time given but will anxiously await the time of meeting with your friends.

CHAS. T. SOUTHWORTH,
Monroe."

More reasons next month. These ought to make you decide to attend.

Editorial Comments

Gratiot County Society has voted to hold monthly in place of quarterly meetings. It was our pleasure to attend their May meeting and from the papers that were presented and the discussions that ensued as well as the active interest that was manifested by those in attendance—twenty-one out of the twenty-eight doctors in the county—we do not hesitate to prophesy that these members will soon cause their society to conduct monthly programs rich in interest and practicality that will be hard to excel. The members are without exception,

active earnest practitioners, fully abreast of the times; we value the acquaintances we made.

September 10 and 11 is not very far away. Have you planned to attend our 49th Annual Meeting in Lansing? The program is being made up of numerous interesting and instructive papers and discussions. President Kiefer is arranging an excellent program for the General Sessions. Everything points to a most successful meeting. The Lansing profession may be depended upon to perfect every detail and arrangement. Make up your mind now to attend.

July Fourth should find you with arrangements perfected for the ready securance of antitetanic serum. All cases of injuries coming under your care as a result of this holiday celebration should be treated early with a prophylactic dose of this serum. Your treatment should consist of: cleaning of the wounded parts; local treatment with tincture iodine, freshly prepared; ample drainage; sterile dressing; the administration of antitetanic serum. Do not suture these lacerated wounds in their entirety; ample drainage is important as well as imperative.

Advancement as to improved methods of infant feedings have been made notwithstanding that there still exists among pediatricians a great diversity of opinion upon this subject. While these advancements must be recognized it must also be confessed that a universal and satisfactory plan of infant feeding does not as yet exist and the entire subject is still in a more or less chaotic state. He who has employed a certain system of feeding and from its use has secured satisfactory results will do well to go slow in discarding his system for a newer one for all that has been written upon the subject serves but to darken counsel and the haze that envelops the subject is not cleared. It is essential, however, that we be acquainted with the scientific facts involved, and having such a working knowledge we shall be able to meet the demands in each given case most satisfactorily.

We concede the possibility that there are some who, when they see the word "advertiser" or "advertisements" in these paragraphs of editorial comment, automatically skip that paragraph. We dislike harping upon this subject as much as you may dislike reading our comments upon the subject. The necessity, however, exists and until our advertisers voluntarily acknowledge their satisfaction with the responses they receive from their advertisements in *your Journal* we shall be compelled to draw your attention to these advertisers. Without them

The Journal could not continue. Without your patronage of them we cannot secure new contracts or continue the contracts now in force. We would that we could impress these two facts upon you more forcibly. It is a subject that is very vital to your publication's welfare and continuance. In view of this will you not *now* make it a point to patronize our advertisers? Sit down at once, before reading another page, and send an order to some of them and tell others, even if only by a postal card, that you appreciate their patronage of *The Journal*, and that you will confer your next order to them. Certainly this is not asking too much from you. May we have this co-operation?

A wave of enthusiasm seems to be spreading over the country in favor of the X-Ray in arriving at a diagnosis in gastrointestinal disturbances. Much is being asked of the Roentgenologist and we are inclined to feel that in many instances hasty conclusions are reached that are not founded upon a true interpretation of the plates. One thing is certain that it requires more than one plate or picture to reach a definite conclusion. Many plates are necessary—taken at frequent intervals and to this there should be added fluoroscopic examinations and lastly a careful history of the complaint must be taken before one is justified in rendering an opinion. The Roentgenologists duty does not even then terminate—he should follow up these cases and whenever possible be present at whatever operation may be performed so that he will be enabled to check up his findings and see the true conditions that exist. This is essential before one ventures an ultimate diagnosis and even then the percentage of failures today is in the neighborhood of 50 per cent.

Public Health, issued by the state board of health, states: "Here is a bit of publicity we want to impress upon every community. The per capita tax expenditure of 184 cities in the United States: Health 33 cents; Recreation 59 cents; Charities \$1.08; Fire \$1.65; General government \$1.95; Highway \$2.01; Police \$2.15; Education \$4.89. Criminology statistics show that crime has increased seven-fold greater than population within the past sixty years. What relation is there between the cost and the increase of crime and the low per capita expenditure for health? A nation that places its public health service at the bottom of the list of its appropriations for public purposes has little reason to lay claim to leadership in the march of civilization."

The day is past when the silk-hat, Prince Albert coat, white, "boiled-shirt" and tie and the ministerial somber face together with a

solemn, stiff demeanor are considered the proper characteristics of a member of the medical profession. Such apparel and demeanor have been properly relegated to the archaic past. The physician of to-day is not a Beau Brummel even though custom permits him to select whatever wearing apparel his individual tastes may dictate. Neither is it expected that his facial expression in the sick-room, consultation chamber or hospital shall reflect all the solemn and sad scenes of which his calling makes him a frequent witness. A sunny, cheerful, open expression does not necessarily imply frivolity or lack of earnestness. The true physician of today carries with him the mannerisms that reflect cheerfulness, hope, inspiration combined with compassion, sincerity, love and honesty so distributed as to be in harmony with his every surrounding and changing scenes of his labors.

There is, however, an element in many of us that remains lacking or dormant—enthusiasm. We are still inclined to be too matter-of-fact, too fatalistic, too much disposed to say: "Let George do it." We do not permit ourselves to become enthusiastic; we are yet too skeptical. Especially is this true of our attitude to organized medical effort. Yes, we do lend our support by becoming members but we stop at that, lie back and are content to "let George" furnish the features and do the work. We lack what is known in base-ball parlance as, "pep," "ginger," and "team work." We all need a few hypos to arouse us from our lethargic state. We are sustaining personal losses every day that we permit this state of affairs to continue.

Our organization and its component county societies are in need of enthusiasm on the part of every member. Not the "Hurrah, Come On Bill" sort but earnest, active enthusiasm inspired by the desire to make our individual and combined organizations potent, influential, up-building and uplifting of everything that goes to produce ability and efficiency and happiness for the physician as well as the community in which he resides.

Let us all become enthusiastic in our society work, the lines along which it may best exert its influences, its deliberations and its discussions, its committees and thus grasp and realize upon more fully the good that will ensue from a whole-hearted exhibition of enthusiastic effort. Don't be a "hang-backer." Be a "pusher." Pull your oar and pull hard. In this life we realize the greatest good, the greatest benefit and the greatest reward when we are working to our fullest capacity. When we do good to and for others we are at the same time receiving personal benefits. Everything that we do in the end brings satisfying returns to our individual selves—we are always repaid ten-fold. So let's have a little more organized enthusiasm.

We are living in a scientific age, one in which all lines of useful effort are rapidly becoming reduced to a scientific basis. We are living in an age of the survival of the fittest and it means more for one to be thoroughly fit for his work today than it did ten years ago. It will mean more to be fit ten years from now than it does today. Success in life in its broad sense is a matter not of luck or chance, but is governed by laws of nature—mental, moral, physical and spiritual. To work in harmony with these laws means success of the highest order.

"Cosmic consciousness is a development of the universal sense, an appreciation of the solidarity of the race, the all-oneness of things, the reality of the brotherhood of man, on which plane man comes to see the reality of the fact that he profits most who serves best."

The desire to serve develops as man passes from the selfish stage toward the wisdom of universal consciousness. In other words, as we unselfishly enable others to succeed, we ourselves make progress toward success. Everyone has in him undeveloped capacity for more and better service. Our medical societies offer you the arena in which you may stage your effort to bring out the dormant ability of your neighbor as well as of yourself. Are you grasping the opportunity?

A good program has been about completed for the meeting of the County Secretaries' Association to be held in Lausing on September 9. Details of the meeting will be published in the August issue of the *Journal* of the Michigan State Medical Society.

Every County Secretary should reserve this date. The tendency of the rank and file of medical men is to neglect medical society work or at least leave this particular field of activity to some one else. Every man will do something if he is pushed to it. The County Secretary seems to be the only fellow to do the pushing. When we, as Secretaries, find ourselves in this embarrassing position and we feel too, that we are unjustly imposed upon by our membership we must not lie down, sulk or balk, but respond to the inevitable with a smile, a will and a determination to arouse the medical lethargy universally prevalent. This means work. We should be alert to grasp every opportunity that will blaze the way for us. Indeed, unexpectedly do these opportunities present themselves while we are mixing with our fellows, and discussing medical society work or when we are familiarizing ourselves with the literature upon medical society work. Somnolence brings on an early death for ourselves and a disintegration of our society. Mental alertness, enthusiasm and an intense interest in medical progress and de-

velopment of individual efficiency will arouse the smouldering embers of medical timbers.

The forum of the County Medical Society work where our failures as well as our successes are freely and frankly discussed is our Annual Meeting of the Association which will be held in Lansing September 9.

In order that we may prove the value of our advertising columns, we are asking you to take a moment and drop us a card, stating whether or not you are accustomed to patronize our advertisers; and if not, tell us why you are not doing so.

Michigan is a great state, touched by four of the Great Lakes. Its interests are varied. Its people need all kinds of manufactured goods. Its physicians are prosperous. We have told these facts to advertisers everywhere. Now it is up to the readers to prove our assertions are true, by purchasing from the advertisers in the *Journal*. Let's all boost together and thus satisfy the advertisers.

In a recent number of the "*Detroit Saturday Night*" we have noted an article on "Michigan's Medical Muddle. Overlapping, Duplication and Waste in One Department of the State University," by Henry S. Bartholomew of Lansing. The author first demonstrates the duplication of teaching, hospital work and laboratory work in the two medical departments of the University and advances definite reasons why, in this present day, it is absurd that the people should be taxed to maintain two distinct departments whereby, under present conditions, one is by the very nature of these conditions bound to be deficient and unable to maintain as high a standard as the other. It is an able criticism and a timely one meriting the serious, sane and unbiased consideration of the faculty of both these departments and also of the public and medical profession in general.

We are aware that a generation or so ago this very subject called forth numerous heated arguments and differences of opinion and the dual departments have been allowed to exist by reason of courteous tolerance, one for the other. We are in doubt as to whether further comment upon the subject would be wise in these columns lest the charge be made, unwarranted, that our organization is back of a movement to bring about an amalgamation, and old wounds and vituperative arguments be opened and resurrected and the enmity of our fathers be kindled anew. We do feel that the present spirit of mutual respect is exactly suitable for the acceptance of properly planned amalgamation. Our present day training and life has caused

all of us to cast aside former narrowness and permits us to take up this subject unbiased by reason of narrow minded adherence to dogmas and schisms whose fallacy modern progress and science demonstrates.

This issue contains a full page advertisement of a food that has been endorsed and approved. It is a "keyed" advertisement which means that the advertiser wishes to test the value of this publication as an advertising medium. *It is up to our readers to respond to this request. Cut out this coupon, send it in, receive an ample sample in return and thus aid your Publication Committee in securing increased advertising business.* This is important. Don't put it off. If you are busy have your wife do it.

The following is an advertisement that appeared in a Toledo daily paper:

Smallpox.

I wish to say to my friends and the people who have bought an Electro-Chemical Ring from us during the last twenty years, that no person can catch small-pox unless they have an excess of acid, which they cannot have if they wear this ring that is a good fit and use it as directed.

Vaccination will not take for a person who wears this ring.

Electro-Chemical Ring Co.

W. G. Brownson, Prop.

220 15th St.

We understand that Toledo has been passing through a mild epidemic of smallpox and the local health officers advised a general vaccination. The next day this ad appeared in a daily paper and it is reported that in a few days some 1,100 of these rings were sold at \$2.00. The wonder is that any newspaper publisher or manager in this present day would tolerate such a travesty and foster such a fraud. We sincerely hope that the incident will not be permitted to pass by ignored by the Toledo profession.

The necessity of going to press before the session of the American Medical Association adjourned and our presence at that meeting accounts for the failure to report the transactions of our national organization in this issue. The August number will contain a review of the entire session.

County Secretaries are urged to send us the names of the delegates appointed by their society. This is essential that credentials may be mailed to them.

Correspondence

Big Rapids, Mich., June 1, 1914

Editor Michigan State Medical Journal,
Grand Rapids, Michigan.

Dear Sir:

I have read with considerable interest your editorial comment in the June number upon the Fee Schedule recommended by the committee appointed by the House of Delegates last year. I do not agree with all your conclusions on this subject.

You say this fee schedule may be classed as special prices to Insurance Corporations. It seems to me that you are taking a very narrow view of this proposition. The Insurance Corporations are not paying these fees out of their own treasury. The cost of this work finally falls upon the employers of labor and is, of course, charged up by them to over-head expenses of running their business and is finally paid by the consumers of the articles manufactured by them.

Before the Working Men's Compensation Law was passed and the physician took his chance upon the liberality of the employers or upon the honesty of the workmen, a great deal of this kind of work was done by the profession for which no compensation at all was received and I think it safe to say that in no case, or at least in very few cases, did any surgeon receive higher fees for treating this class of patients than is provided in the schedule recommended by our committee. I do not believe that any surgeon would think of charging more than \$50.00 for herniotomy performed upon a patient whose yearly income was less than \$1,000.00 a year.

Since the Working Men's Compensation Law went into effect every physician has received pay promptly for all the work he has done for laborers employed in manufacturing or industrial pursuits.

I think that the medical profession has been greatly benefited by the Compensation law. The fees provided in the Fee Schedule for minor injuries are very liberal and the amount of major operating done in this class of cases is after all comparatively insignificant. You mention a herniotomy. An operation of this kind would only be done under the Compensation law in cases of Traumatic Hernia. It is difficult to conceive of a Traumatic Hernia occurring without other injury of a severe nature, which would probably require a much longer period of treatment than is mentioned in your editorial.

The California State Medical Society has recently adopted a fee schedule which corresponds very closely with our own and I understand that fee schedules have been adopted in other states, though none of them have come directly to my attention, in which the fees correspond closely with ours.

Most of these injuries occur in cities and villages so that the mileage charge cuts little figure in the matter.

In some instances I would prefer to have a revision upward of some of the fees mentioned in this schedule, but taking it all in all and comparing the income received in my own case from this class of work at the present time, working under this fee schedule, and with the amounts I received for similar work before the Working Men's Compensation Law went into effect, I may say that I am heartily in favor of the present system.

I believe also that it is the duty of the medical profession to adopt a fee schedule for this class of work, based upon fees that would be charged for a man earning less than \$1,000.00 a year. This need

not establish a precedent for private fees for people enjoying larger incomes.

At present the advantage of a uniformity in fees for the same class of work, among a certain class of people, avoids litigation, which is one of the great advantages of the Working Men's Compensation Law, and renders it impossible for surgeons any where to take advantage of the situation and make exorbitant charges.

Manufacturers operating under this law do so voluntarily, not all of them are protected by insurance companies, some of them are protected by our own state insurance department and pay the exact cost for protection under this act. If the expense to them is made larger than their business can stand they will withdraw from operation under the act and we will be thrown back upon the former unsatisfactory conditions. The present arrangement is a good one for the medical profession and insures us pay promptly for work done, and I believe that on the whole the fee schedule recommended by the committee is entirely proper and should be adopted by the House of Delegates at the next meeting.

Yours truly,

W. T. DODGE.

Deaths

Dr. Daniel McFayden, of Detroit, died at his home Wednesday, April 22nd, as the result of rising from his own sick bed to go to the rescue of a child patient. At the time Dr. McFayden was suffering from an attack of quinsy. He contracted a severe form of diphtheria, which, however, cleared up after a few weeks' treatment, but which was followed by post-diphtheria paralysis.

Dr. McFayden was born in Argyle, Scotland forty-six years ago. He was a graduate of the University of Toronto and of the Detroit College of Medicine, and practiced in Bay City six years, coming to Detroit three years ago.

Dr. Thos. E. McDonald of Holly died during the month of May. Dr. McDonald was a member of the Oakland County Medical Society and at the time of his death was vice-president of that Society.

Dr. Bret Nottingham of Lansing died after a long illness in Harper Hospital, Detroit. Dr. Nottingham was a member of the State Board of Registration and the Republican State Central Committee. He was 37 years old and was the son of the late Dr. David Nottingham, prominent Lansing physician and member of the state senate of 1905. Dr. Bret Nottingham graduated at the University of Michigan and practiced extensively in the hospitals of New York City before settling in Lansing. After the death of his father he succeeded to the latter's practice. He was popular in Lansing and throughout the state.

Dr. Bella Cogshall of Flint met death in Detroit during the month of May as the result of a street car accident. Dr. Cogshall was a member of the Genesee County Medical Society.

Dr. Joseph Shellfish died of heart trouble, Monday, June 9th, 1914. Dr. Shellfish was a prominent physician of Detroit, and was a member of the Wayne County Medical Society.

State News Notes

Dr. A. H. Rockwell of Kalamazoo will deliver an address on "Garbage Disposal" at the annual meeting of the League of Municipalities to be held in Bay City on June 24.

Dr. J. T. Case of Battle Creek has been elected an honorary member of the German X-Ray Society.

Dr. J. H. Kellogg of Battle Creek has been granted a gold medal and diploma from the University of Palermo, Italy.

Dr. F. J. Erdlitz and Miss Matilda Rivers of Cheboygan were married on May 22nd.

Dr. A. D. McAlpine of Detroit has been appointed as assistant police surgeon.

Gov. Ferris has appointed Dr. Enos C. Kinsman of Saginaw as a member of the state board of registration in medicine to fill the vacancy caused by the death of Dr. Bret Nottingham. The term expires Sept. 30, 1915.

Dr. A. J. Bower of Greenville departed about the middle of June for a European tour and will attend the Surgical Congress in London, returning home during the last part of July.

The following committee has been appointed to complete the plans for the organization of the Saginaw Valley Medical academy: Drs. McMeakin, Bruce and Meyer of Saginaw; Knapp, Randall and Scott of Flint; Hauxhurst, Ruggles and Kelley of Bay City.

Hastings is planning to hold a Health Week during the forepart of this coming November.

The 46th Annual Commencement of the Detroit College of Medicine and Surgery was held on June 4th and diplomas were conferred upon 54 graduates. Dr. J. H. Carstens delivered the faculty address. Governor Ferris was the principal speaker of the evening.

Henry Ford of Detroit has informed the board of trustees of the Detroit General Hospital that he will supply the necessary funds so that those who have donated to the fund for building this new hospital may have their donations returned to them and that in addition he will furnish the required amount to complete the hospital according to the plans prepared.

The following were elected as the officers of Alumni Association of the Detroit College of Medicine and Surgery for the coming year: Dr. T. A. Langlois, Wyandotte, Honorary President; Dr. W. E. Mooney, Detroit, President; Dr. F. Booth, Seattle, Vice-President; Dr. C. W. Husband, Detroit, Secretary-Treasurer. The Executive Committee is composed of the following men: Dr. R. L. Clark and A. D. McAlpine and the officers.

More than 100 members of the Detroit profession sat down to a complimentary dinner that was tendered to Dr. Charles Douglas in commemoration of a half century of professional life. Dr. J. H. Carstens acted as Toastmaster and the following toasts were responded to: The Man by Angus McLean; The Pediatrician by Dr. A. L. Homes; The Teacher by J. E. Clark; The Colleague by D. LaFerte; The Family Doctor by Eugene Smith; "Dr. Douglass and the Young Doctor" by N. L. Hoskin; "Our Guest" by Himself. At the conclusion of the dinner Dr. Douglas was presented with a handsome-gilt-ivory clock, suitably engraved.

The "Good Spirit Club" of Henry K. Wampole & Co., Inc., comprising the members and employees of the firm, will hold its Second Annual Picnic Saturday, July 18th, at Alcyon Park, Pitman, N. J. The event promises to be a marked success—no less so than the many other diversions which have been planned by the organization since its existence, and which have not failed to further among the employees that spirit of enthusiasm for healthful recreation and all around good cheer which is characteristic of the name of the Club and its purposes. The Company's establishment will of course be closed for the day and all will join in the pleasures of the outing.

County Society News

BERRIEN COUNTY

The regular monthly meeting of the Berrien County Medical Society was held on the 14th of May in St. Joseph, Mich.

Among other business, Dr. Van Noppen of Niles, was admitted to the society, after which papers were presented by Dr. W. L. Wilson of St. Joseph on "The Early Diagnosis of Tuberculosis by the General Practitioner" and Dr. B. D. Giddings of Niles on "Treatment of Tuberculosis by the General Practitioner."

The general discussion was animated and dwelt mostly on the "Best Methods of Fumigation."

MABEL E. ELLIOTT, SECRETARY.

DETROIT OTO-LARYNGOLOGICAL SOCIETY

Meeting held April 21, 1914. Dr. Harold Wilson in the Chair.

Dr. Otto Freer, of Chicago, gave an address "The Intranasal Route Through the Ethmoid Cells for Opening the Frontal Sinus," illustrated by drawings and specimens.

Dr. Wilfrid Haughey, of Battle Creek, read a paper entitled "Some Indications for, and Points in the Technic of the Submucous Operation on the Nasal Septum."

The paper was discussed mainly by Dr. Freer, of Chicago.

Dr. John Riker, of Pontiac, was elected to active membership.

Meeting held May 26, 1914, Dr. I. Vernon White in the Chair.

Dr. White read the paper of the evening, entitled "Frontal Neuralgia." The paper was generally discussed.

Dr. Mercer reported a case of angioma under the tonsil extending half over the pharynx, with projection of the size of the end of the thumb. Cauterization reduced the size of the projection and relieved the obstruction. The patient was taken home, against the advice of the doctor, and he has not heard of the patient since.

Dr. Chambers reported a case of a man twenty-three years old from whose nostrils he removed a number of polyps, and whose adenoids were also removed. Instead of a free passage, the patient was unable to breathe. It appeared that the patient had to again learn to breathe through the nose. He also reported a case of possible rhinoscleroma of the nose in a girl about twelve years old, and referred to a clear case, also of the nose, in a woman twenty-eight years old, whom he presented to another society about a year ago.

Dr. Wilson reported a case of nasal fibroma.

This being the Annual Meeting, the report of the Secretary-Treasurer was accepted and the following officers elected:

Dr. Emil Amberg, President.

Dr. C. L. Chambers, Secretary-Treasurer.

EMIL AMBERG, SECRETARY.

GRATIOT COUNTY

Meeting held at Park House, St. Louis, Michigan, May 19, 1914. Called to order by Pres. Monfort, with twenty-two members and five visitors present, the largest attendance since my connection with the society.

Minutes of the last meeting were read and approved.

Application of Dee Hale Andrews, Orill Reichard, and Jesse L. Bender were received and referred to the board of censors, and upon their recommendation Drs. Andrews and Reichard were duly elected to membership and the application of Dr. Bender was laid over until the next meeting.

For a clinic Dr. Brainerd reported two interesting cases; Dr. Hubbard reported that the case of Hodgkins disease which he showed in December was improving under vaccine treatment; Dr. Highfield reported a case of Scorbustus in a child of thirty-two months old.

Upon motion Dr. Gardner was elected delegate to the State Society meeting, and Dr. Brainerd alternate.

Dr. Warnshuis and Mr. Singer were then called upon to make recommendations regarding having meetings oftener. They both spoke in favor of meeting at least once a month. Upon motion of Dr. McLachlin it was voted to meet once a month for the next six months.

Dr. Kilborn read a very interesting paper upon the treatment of infectious diseases of the hand. This paper was discussed by Drs. Drake and Warnshuis.

Dr. Street read a paper on Eugenics which was enjoyed by all, and was discussed by Drs. McLachlin and Weller.

Dr. Wheeler then introduced Dr. Roy Watson whom he asked to read a paper. Dr. Watson showed a chart of the human eye, and after a short talk on the anatomy of the eye he talked on Glau-

coma. His talk was enjoyed by all and was discussed by Dr. Wheeler.

Dr. Warnshuis then read a very able paper on the Indications for Cerebral Decompression. This paper was discussed by Drs. Brainerd and Hume.

Dr. Monfort reported that he made some inquiries regarding the possible arrangement with the Board of Supervisors regarding the care of the poor, and was discouraged. He did not attempt to get the committee together.

Dr. Foust reported that he found upon corresponding with the Hillsdale County Doctors that they did not have any special way of getting money from the Board of Supervisors. Dr. Street wanted us to join together and have some doctor bring suit against the Board to collect some bill they had refused to pay. A motion was made that we notify the Board of Supervisors and the Poor Commissioners that the members of the Gratiot County Medical Society will not attend any indigent case for less than the regular rates. This brought up the question of what were the regular rates, for the Society has only an old fee bill.

It was supper time, and upon motion this whole subject was laid upon the table. About 25 sat down to supper as guests of the St. Louis physicians.

E. M. HIGHFIELD, SECRETARY.

MARQUETTE-ALGER COUNTY

The June meeting of the Marquette-Alger County Medical Society was held in Negaunee on the 5th inst. Doctor A. W. Hornbogen, the essayist of the evening, read a paper on "Notes from the Schauta-Wertheim Clinic." This section of notes dealt with their methods of classification, the pathology and treatment of the uterine endometrium, especially their reliance upon the microscopical examinations of the uterine scrapings for the early diagnosis of carcinoma. In their opinion clinical symptoms in this disease appear too late to be of any avail, and every woman should, at or before the menopause, have a uterine curettement with microscopical examinations of the scrapings made. Doctor Hornbogen promised a continuance of these notes. Doctor R. A. Burk, who has recently returned from Europe, gave an interesting talk on men and methods as observed in the clinics of Berlin. The Society will be active at the meeting of the Upper Peninsula Medical Society, which is to be held in Houghton in August.

F. A. FELCH, SECRETARY.

MUSKEGON-OCEANA COUNTY

The Board of Education of the Muskegon Public Schools have given to our Society the use of a room in the Hackley Public Library for our medical meetings. This is a splendid meeting place, being centrally located, and is much appreciated by Muskegon physicians.

The Board of Education has also honored one of our members, Dr. John Vanderlaan, by naming one of our new Public Schools, the VanderLaan School.

Dr. VanderLaan has been an active member of the School Board for a number of years.

The last meeting of this Society was held at the Hackley Library Friday evening May 22. A paper was read by Dr. A. A. Smith, on Obesity, Its Disorders and Complications.

Our summer schedule of meetings begins Friday June 5, with our first out of town meeting. This meeting will be held at Hart, Mich. and the trips

will be made by automobile. Drs. Day, Nickleson, and Munger will read papers. The fine auto trips make these meetings doubly enjoyable.

OAKLAND COUNTY

The Oakland County Medical Society held its quarterly meeting June 11th at Lake Orion at the Bellevue Hotel.

Two papers were read by Flint doctors. Dr. Randall read a paper on "Infected Gall Bladder," and Dr. Don Knapp State Health Officer for the 6th District, read a paper on "Recent Development in Public Health Work."

During the summer months the Oakland Society aims to have its meetings away from Pontiac, when they can spend an afternoon of enjoyment and finish with a good dinner.

SANILAC COUNTY

The quarterly meeting of the Sanilac County Medical Society was held at Sandusky, June 9, 1914, for the purpose of discussing and adopting the proposed fee bill which was drawn up by a committee appointed at the annual meeting held on January 26, 1914. The fee bill was signed by 23 physicians of the county and unanimously adopted.

J. W. SCOTT, SECRETARY.

Book Reviews

PRACTICAL THERAPEUTICS: Including Materia Medica and Prescription Writing, with a description of the Most Important New and Non-official Remedies Passed upon by the Council on Pharmacy and Chemistry of the A.M.A. By Daniel M. Hoyt, M.D., formerly instructor in Therapeutics, University of Pennsylvania; Fellow of the College of Physicians; Assistant Physician to the Philadelphia General Hospital. Second edition. 426 pages, cloth, price \$5.00. C. V. Mosby Company, St. Louis, Mo.

This work presents an excellent summary of the physiological action of drugs and their chemical application, and demonstrates the importance of rational prescribing based upon physiological action. The text is so arranged that one may readily find a given drug and learn its physiological action upon various organs and tissues and its therapeutic indications.

It also contains a list of all the non-official remedies approved by the Council on Pharmacy and Chemistry of the A.M.A. together with a complete description.

Its therapeutic index is a time saver to the busy man. An excellent work. The exact book for the busy doctor. Its kindly reception is assured.

RADIUM AND RADIOTHERAPY. RADIUM, THORIUM AND OTHER RADIO-ACTIVE ELEMENTS IN MEDICINE AND SURGERY. By Wm. S. Newcomet, M.D., Professor of Roentgenology and Radiology, Temple University, Medical Department; Physician to the American Oncologic Hospital; Fellow of the College of Physicians, Philadelphia. 12mo, 315 pages, with 71 illustrations and 1 plate. Cloth, \$2.25, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

The extraordinary element radium has been thor-

oughly investigated, and its powers and properties are now becoming known. Like other potent agents, it can do great good or great harm, according to the intelligence or ignorance with which it is used. Dr. Newcomet is a leading authority on radium, and the whole field of radio-active substances. In this small volume of absorbing interest he first conveys a knowledge of what radium actually is, its nature, its physics and its chemistry, and in the second half of his book he details its use in all the diseases in which it has been found of value, and gives full directions for its application. His chapters on cancer and other tumors will be read with special interest. Simple illustrations are used to make clear any point, and typical cases are introduced in proof of the practical value of this newest and most powerful addition to the armamentarium.

This is the most instructive work we have seen upon this subject. It is authoritative and places the subject of radio-activity before the medical public in a clear and comprehensive manner. It is certainly a most timely work and the seeker after reliable information will find this a most satisfactory book. It is assured a welcome reception merited in every respect.

THE READY REFERENCE HAND-BOOK OF DISEASE OF THE SKIN. By George Thomas Jackson, M.D., Professor of Dermatology in the College of Physicians and Surgeons, Medical Department of Columbia University, New York. Seventh edition, thoroughly revised. 12 mo, 770 pages, with 115 engravings and 6 colored plates. Cloth, \$3.00, net. Lea & Febiger, Philadelphia and New York, 1914.

This work fully deserves the splendid success which it has attained. It very closely approaches the ideal for the purposes of the general practitioner, and for the dermatologist it is unexcelled for quick reference. Its clear and concise statements and its excellent illustrations and colored plates are features which have kept it in the forefront of dermatological books, and have brought it to its seventh edition. Each one has been an improvement over the previous ones, and the latest is the best of all. The opening sections are general, and cover the anatomy and physiology of the skin and diagnosis; these are followed by therapeutic notes and a table showing the best classification of diseases according to present-day views. The individual diseases are then taken up alphabetically, and each one is thoroughly considered. Treatment is brought out prominently, and in most cases the formulas that give the best results are included. This gives the volume a practical working value which would be impossible under any other system. Many of the old sections have been entirely rewritten. New articles have been included on vaccines, salvarsan and the use of X-Rays. Many new illustrations and two excellent new colored plates appear in this edition.

If you possess this work and study it you will be enabled to clear up many of the dermatological cases in your practice that are now worrying you by their stubborn resistance to treatment. A splendid aid to the practitioner, is our opinion.

THE CLINICAL HISTORY IN OUTLINE, by Paul G. Woolley, S.B., M.D., Professor of Pathology, College of Medicine, University of Cincinnati; Director of Laboratories, Cincinnati General Hospital. 53 pp., cloth, price \$1.00. C. V. Mosby Company, St. Louis, Mo.

An excellent guide to assist one in taking case histories and the compilation of case reports. A manual that should be in the hands of every interne and in every hospital library.

BLOOD PRESSURE IN MEDICINE AND SURGERY. A GUIDE FOR STUDENTS AND PRACTITIONERS. By Edward H. Goodman, M.D., Associate in Medicine in the University of Pennsylvania. 12 mo, 226 pages, illustrated. Cloth, \$1.50, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

No physician is properly equipped today unless he understands blood pressure and carries with him an instrument for its measurement. It is quite as important as the thermometer and stethoscope. The subject has been thoroughly investigated in all its bearings by many of the foremost physiologists and clinicians.

A brief, clear and authoritative book has been needed to place this definite body of knowledge readily at command of the practitioner of medicine and surgery. Dr. Goodman has devoted years of study to the subject, and is qualified to present it in every particular. He covers the physics and physiology sufficiently to convey an understanding of the principles, and then devotes successive chapters to Hypertension and Hypotension; Blood Pressure in Cardiovascular, Renal, Infectious and Nervous Diseases. Chapters are also given on Blood Pressure in Obstetrics and in Surgery. Then the author deals with conditions in the Gastro-intestinal tract and the Internal Secretory Glands and in Ophthalmology. He closes with chapters on the Effect of Drugs and other Therapeutic Measures on Blood Pressure and on the treatment of Hypertension and Hypotension. His style is exceedingly simple, clear and direct, and he introduces many typical and instructive diagrams. As an authoritative compendium of the subject this handy volume accomplishes its purpose "to make fully available the assistance which the study of blood pressure affords in the diagnosis, prognosis and treatment of disease."

This new book contains the latest information upon the subject and its splendid arrangement, illustrations and excellent typographical workmanship will secure for it the hearty approval of all and assure it a place as a recognized guide upon blood pressure and its meaning.

PROGRESSIVE MEDICINE. Vol. XIV, No. 2. A quarterly digest of advances, discoveries and improvements in the medical and surgical sciences. Edited by Hobart A. Hare, M.D. \$6.00 per annum. Lea & Febiger, Publishers, Philadelphia, Pa.

Contents: Hernia by W. A. Coley; Surgery of the Abdomen by J. C. A. Gerster; Gynecology, John G. Clark; Diseases of the Blood, Alfred Stengel; Ophthalmology by Edward Jackson.

This number maintains the usual high standard of the series. Extremely valuable to the practitioner and specialist.

DISEASES OF THE HEART. By John Cowan, D.Sc., M.D., F.R.F.P.S., Professor of Medicine, Anderson's College Medical School; Physician, Royal Infirmary; Lecturer in Clinical Medicine in the University of Glasgow; Examiner in Medicine, Royal Army Medical College. Octavo, 458 pages, with 199 illustrations. Cloth, \$4.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

This new work will be of great value to every physician and surgeon, for it presents the most recent knowledge on this important class of diseases, and the latest methods of handling them. To quote from the preface: "During the last ten years great advances have been made in our knowledge of the disease of the heart and arteries. New methods of histological technic revealed lesions which were

hitherto unappreciated, and experimental research has deciphered their causes. The sphygmomanometer, the polygraph, the electrocardiograph, and the Röntgen rays, have become accessible to the clinician, and the data thus acquired have elucidated some of the many problems which awaited solution; while the pharmacologists have defined the uses of such drugs as digitalis more accurately than has been previously possible.

"The following pages are an attempt to review the whole subject in the light of these recent advances, and to present to the practitioner the results which have been attained, and their bearing upon the practical work of *diagnosis, prognosis and treatment.*"

The book is based largely upon the author's personal experience, though the best recent literature has also been carefully studied. Two of the chapters, upon special subject, have been written by authorities in their particular fields. The illustrations are numerous, excellent and nearly all original.

Miscellany

Pepsin Magen Bitters.—The government chemists found this preparation to contain only a trace of pepsin. The preparation was declared misbranded (*Jour. A.M.A.*, May 16, 1914, p. 1575).

Bavarian Malt Extract.—The government chemists proved that this was not a malt extract coming from Bavaria, but instead was beer. The product was declared misbranded (*Jour. A.M.A.*, May 16, 1914, p. 1575).

Thiocol Re-admitted to N.N.R.—In 1913 the Council on Pharmacy and Chemistry directed the deletion from New and Nonofficial Remedies of Thiocol and Syrup Thiocol, Roche, because a preparation called Sirolin, containing Thiocol as its effective component and practically the same as Syrup Thiocol, Roche was being advertised to the public. The Hoffmann-LaRoche Chemical Works having furnished assurance that the public exploitation of Sirolin has been discontinued, the Council voted that Thiocol and Syrup Thiocol, Roche be restored to New and Nonofficial Remedies (*Jour. A.M.A.*, May 23, 1914, p. 1637).

Liquid Petrolatum or "Russian Mineral Oil."—A report of the Council on Pharmacy and Chemistry points out that petroleum oil was used as a medicine by the ancients and that the product "liquid petrolatum" is now on the market under a host of proprietary names and is official in most pharmacopoeias. It was at one time used in the treatment of tuberculosis and as an adulterant of facts and oils on the assumption that it was assimilable. It is now known to pass the system unchanged and has recently been highly lauded as a particularly harmless laxative in the treatment of habitual constipation. As the U.S.P. definition of liquid petrolatum permits the use of rather widely varying products and as there is some difference of opinion whether a light or a heavy oil is preferable, the Council recommends that physicians desiring the water white, non-fluorescent (Russian) mineral oil use the term *petrolatum liquidum* grave or *paraffinum liquidum*, B.P. if the heavy product preferred by Sir W. Arbuthnot Lane is desired and *petrolatum liquidum laeve* if the light variety is desired (*Jour. A.M.A.*, May 30, 1914, p. 1740).

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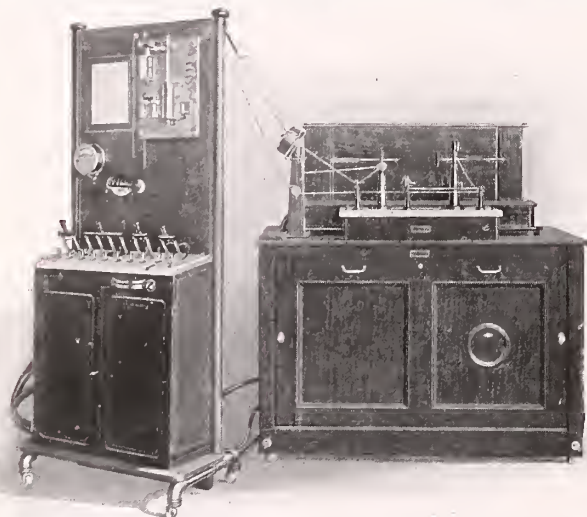
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Original Articles

THE TREATMENT OF PERNICIOUS VOMITING OF PREGNANCY.*

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CHICAGO, ILLINOIS.

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Attending Obstetrician and Gynecologist Presbyterian Hospital, Chicago.

Shortly after the end of the first month of gestation, the pregnant woman usually complains of some form of gastric disturbance. Frequently this consists merely of occasional nausea with acid eructations, yet actual vomiting ensues in about one-third of cases. These symptoms gradually subside, disappearing as a rule at about the beginning of the fourth month, leaving no signs of its former presence save an occasional decayed tooth. Rarely a mild type of nausea and vomiting persists throughout the pregnancy, and although the symptoms are not severe, yet it seems to prevent the attainment of the unusually good health to which the pregnant woman seems entitled.

This is, however, a state in which the vomiting is so severe and frequent as to prevent the retention of food, so that the victim loses weight and strength and frequently comes to death unless the process is arrested. This condition is known as pernicious vomiting of pregnancy or hyperemesis gravidarum, and develops either gradually from the ordinary morning sickness, or else suddenly as an acute process. Properly speaking it is not a clearly defined disease, as it groups together by means of the common symptom of vomiting, a number of conditions which have been described as separate diseases, yet which are more often considered various steps of a general pathological process.

It is commonly regarded that these variations in form present different mortalities. Thus the common type usually runs a long course and seldom terminates in death without abundant warning. On the other hand, there is an acute process which is attended with icterus, and which appears to develop liver lesions incompatible with life, even before the clinical symp-

toms have been recognized as desperate. Quite naturally much of the recent investigation given to this subject has been directed to the differentiation of the varying phases of this symptom-complex, so that we may recognize the most dangerous types sufficiently early to save life by the employment of therapeutic abortion, now recognized as our final curative measure.

Prominent among the American students of this disease is Williams. This observer, having accepted the classification of reflex, neurotic and toxemic vomiting, proposed, in 1906, to separate the latter from the two former by means of the study of the ammonia coefficient. (The ammonia coefficient expresses the proportion of the total urinary nitrogen represented by the urinary ammonia nitrogen). As a result of his study Williams concluded that the ammonia coefficient remains within the normal limits in the neurotic and reflex types, while it becomes markedly elevated in the toxemic variety as well as in the inanition which follows the prolonged neurotic types. Williams' first paper, published in 1906, was based upon the study of eight cases, and exerted an immediate and marked influence on contemporary thought. His views, however, have not gone unchallenged as he himself states in the last edition of his text. Thus Longridge, Leathes, and others, have urged that the high ammonia coefficient is simply a manifestation of an acidosis, while Underhill and Rand have claimed that it was merely an accompaniment of inanition which was in no way connected with a toxemic process.

Our interest in this subject was aroused by the study of Williams' first case, shortly following which we began our investigations. Unfortunately, however, our results have not tallied with his, but have presented differences which we first explained on the ground of dissimilarity of cases. These differences became more pronounced upon comparing our study of eclampsia and pernicious vomiting, and when considering theoretically many factors of interest in this doctrine of the ammonia coefficient.

To begin with, the statement that the ammonia coefficient is increased is usually taken to imply that the absolute amount of ammonia

*Read before the Section on Gynecology and Obstetrics, M. S. M. S. 48th Annual Meeting in Flint, Sept. 3-4, 1913.

is increased, which, however, is not always the fact. Folin and others have shown that the ammonia is not usually subject to wide variations in weight, averaging about .8 grams in the twenty-four hours, with normal limits between .5 and 1.5 grams. At the same time they have shown that the percentage distribution of nitrogen among its various subdivisions varies according to the total amount of nitrogen in the urine. Thus it is possible for the same absolute and normal amount of ammonia to form varying ammonia coefficients with different amounts of total nitrogen: that is to say, the coefficient will be low when the total nitrogen is high and vice versa. This has been well shown by Folin's study of the nitrogenous variations of thirty normal urines, among which he found one urine with a total nitrogen content of sixteen grams of which .8 grams were ammonia nitrogen, a percentage of between four and five. At the same time the urine of one consuming a nitrogen free diet gave a total nitrogen content of 3.6 grams, of which .51 grams were ammonia nitrogen, a percentage of more than eleven. That is to say, the ammonia coefficient rose from 4.3 per cent. to 11.3 per cent. in spite of the fact that the ammonia nitrogen by weight had actually fallen. Moreover, the change was due to variations in diet, producing a fall in the total nitrogen. There was no evidence of a pathological process. Since then it is well known that the ammonia excretion may be profoundly influenced by the diet. The statement that the ammonia coefficient is increased may therefore mean nothing.

FACTORS INFLUENCING THE AMMONIA COEFFICIENT.

Since no vomiting of pregnancy merits the term pernicious when there is much retention of food, we should briefly consider the case from the standpoint of starvation. In what manner does starvation influence the ammonia coefficient? Fortunately there are many careful records of the urine of fasters, the best known of whom are Cetti, Merlatti, and Succi. These clearly show that the total nitrogen falls slowly in starvation, so that several days may elapse before it attains the low level seen in pernicious vomiting. The fall depends largely at first upon the condition of the individual and the character and amount of the last food ingested. Moreover the fall in the earliest days is markedly retarded by the consumption of sugar from the glycogen supply. Thus, Voit has shown that in the dog the influence of the last meals persists for the first six days of starvation. The following table shows the urinary nitrogen in the first six days of four fasts:

Day	Cetti	Breithaupt	Succi	J. A.
1	13.55	10.01	13.81	12.17
2	12.59	9.92	11.03	12.85
3	13.12	13.29	13.86	13.61
4	12.39	12.78	12.80	13.69
5	10.70	10.95	12.84	11.47
6	10.10	9.88	10.12	

The consumption of the body protein is markedly influenced by the fat content of the body; i. e., the greater the amount of fat, the less is the protein metabolism. Yet about three grams of nitrogen in the urine appears to be the low extreme of protein metabolism in the emaciated organism after a prolonged fast. Following this low level there usually ensues a sudden rise in nitrogen and chlorin, characterized as the premortal rise showing that the tissue sparing substances have been consumed. The Freund's state that this was seen following the twenty-first day of Succi's fast, the daily nitrogen of which is thus given. The tables are of great interest in showing that the level of seven grams, so commonly seen with nauseas and vomiting of moderate degree, did not occur until after the eleventh day of starvation.

Daily nitrogen excretion of Succi in Starvation:

Day	N.	Day	N.	Day	N.
1	17	8	9.74	15	5.05
2	11.2	9	10.05	16	4.32
3	10.55	10	7.12	17	5.4
4	10.8	11	6.23	18	3.6
5	11.19	12	6.84	19	5.7
6	11.01	13	5.14	20	3.3
7	8.79	14	4.66	21	2.82

The influence of starvation upon the ammonia coefficient is well shown by the Freund's observation of Succi, and the work of Cathcart upon Beauté. The ammonia nitrogen excreted by the former on the third and twenty-first days of his fast were .14 and .10 grams, giving ammonia coefficients of 1.36 and 3.54. On the contrary the ammonia remained at normal limits with Beauté, with weights of .73, 1.05, and .73 grams on the third, twelfth and fourteenth day of his fast, giving relative values of 5.3, 11.9, and 9.3 per cent. It therefore follows that the ammonia coefficient may be higher or lower in starvation, as is well expressed by the following rule: "With pronounced diminution of the protein metabolism (as shown by the total nitrogen in the urine), there is usually, but not always, and therefore not necessarily, a decrease in the absolute quantity of ammonia eliminated. A pronounced reduction of the total nitrogen is, however, always accompanied by a relative increase in the ammonia nitrogen provided that the food is not such as to yield an alkaline ash." (Folin). The tables are as follows:

Succi	Third day	21st day	
Amount of urine	575 c. c.	235	
Total N., grams	10.55	2.82	
Ammonia N.	.144	.10	
Beauté	3rd day	12th day	14th day
Total N., grams	13.72	8.77	7.78
Ammonia N.	.73	1.05	.73

The above shows that variations in the ammonia coefficient in health and starvation may progress beyond the limit which Williams early set (10%) as indicative of toxemia in the vomiting of pregnancy, without a pathological increase in ammonia. Since the early hope has been abandoned that study of ammonia would serve to throw some light upon the functioning power of the liver, we believe the term ammonia coefficient should be discarded as inaccurate in meaning, unless qualified by the absolute amounts of ammonia, which it has been supposed to describe. The question naturally arises, was there an absolute increase in the ammonia nitrogen in the cases classed by Williams as toxemia because of the high ammonia coefficient, or did it remain normal with the increased percentage the result of the fall in total nitrogen due to lack of food? Unfortunately, the tables show percentages alone. The absolute amounts are not given.

PERSONAL INVESTIGATIONS.

My own study has long shown that the ammonia is absolutely increased as a rule in the more severe cases, although there are exceptions. Treatment, however, may cause variations. These cases therefore present the urinary features of acidosis. Wet have found, moreover, in contrast with Williams, acetone and diacetic acid in all our severe cases. In two instances the crystals of leucin and tyrosin were readily demonstrated in urine which had not been concentrated by evaporation. Nor do we attach the greatest importance of these findings, save as evidence of starvation. The ammonia coefficient has run high in our series and we have not viewed it with alarm, nor yet considered that it indicated the employment of abortion. Rather have we interpreted it as one of the many symptoms of acidosis in hyperemesis, and treated it accordingly. One of our most severe cases presented ammonia of normal amount, (.7 grams with total nitrogen of 3.4 grams) immediately before abortion and after many days' starvation. The toxemic feature was proven in this case by the onset of Korsakow's psychoses with subsequent peripheral neuritis of the Landry type, twelve days after abortion and at a time when danger was no longer apprehended.

As a result of our study we are impressed with the fact that there is doubtless a toxemic basis for all cases which deserve the diagnosis of hyperemesis gravidarum, while admitting that the hysterical element is paramount in many

cases. Certainly no case which could be regarded as of the reflex type has yet come to our observation, nor does the literature appear to us as warranting such distinction. If, therefore, prognosis and classification is impossible from the study of the ammonia and total nitrogen, we must consider all cases solely from the standpoint of their clinical symptoms until a proven index shall be described which will indicate liver insufficiency.

TREATMENT OF ACIDOSIS.

The symptoms of acidosis are urgent ones, and the acidity of the stomach is frequently high. Nor is the habit of vomiting easily controlled. I have not obtained good results from the employment of treatment usually recommended by obstetric texts. In my experience rest in bed and quiet is most important, together with the employment of large doses of bromide by the rectum starting with 40 to 60 grains q. 4 h., as well as solutions of soda bicarbonate and of glucose. Nothing should be given by mouth for several days until the bromide has taken strong effect and the vomiting has ceased. Then the bromides may be cut down. Nearly all texts recommend liquid food by mouth, which in my experience is useless. Stewards of ocean steamers have long known the uselessness of liquid food in the presence of nausea. Solid food, especially broiled meats, toast and cream will accomplish wonders. The combining power of meat with marked stomach acidity should not be forgotten. Rectal alimentation is of extremely doubtful value, and may produce irritation of the gut which will prevent the retention of the salines. With the improvement of symptoms, increase the diet from proteid and fat to carbohydrates, and cut down the bromides. Water should not be given with meals, for one hour before nor for two hours after. Sufficient fluid must be given by the bowel as normal saline. The drop method, on account of its irritating features, has not proven of as much value to me as fixed doses at stated intervals. Rarely does this treatment fail in chronic cases. It is not, however, indicated in the acute and fulminant type. Icterus is a contraindication, if accompanied by severe clinical symptoms. Gastric lavage is rarely demanded in cases amenable to treatment. Rest, large doses of bromides, soda bicarbonate and glucose, and solid food at the right time will accomplish wonders. Purges frequently do more harm than good, although an initial dose of calomel in tenths is often demanded. As a rule the bowels can be well emptied by high colonic flushings.

When this treatment fails it usually can be demonstrated that directions have been ignored. Abortion is rarely necessary. The fulminant type of case, however, should be aborted without

delay as soon as recognized, and even then it may be too late. The method of abortion is entitled to serious consideration, since infection is extremely apt to occur because of the low state of the patient's resistance. Removal of the ovum after dilating with Hegar sounds is the operation of choice in the early months. Frequently, however, the pregnancy is of four or more months' duration when such methods may be impossible. The case should be carefully studied and treated as conservatively as possible. Vaginal hysterotomy is the method of choice in the latter months when the cervix is long and hard, yet its employment is often attended with considerable risk of infection. Especially serious is the risk of cystitis following catheterization, since bladder infections and pyelitis have been described as the focus responsible occasionally for the dreaded puerperal neuritis. The use of the rubber bag is frequently the best treatment even though its employment may not excite pains. Weights should be applied and after twenty-four hours the cervix is usually softened sufficiently to allow the necessary dilatation. The blood pressure is not high and commonly reads near 100, although the pulse pressure is frequently reduced. Consequently the cases are not suitable for bleeding.

The anesthetic is most important. *Chloroform should never be used as it is certain to cause much added damage to the liver.* Ether is objectionable as adding to the causes of nausea. Fortunately nitrous oxide and oxygen is in common usage and answers every demand. I wish to take this opportunity for urging the "twilight anesthesia" with gas in desperate cases. The shock is minimum. This method has been much used in dentistry and is coming into employment in obstetrics and gynecology. Although consciousness is retained, there is little or no pain. The patient will answer questions during the operation, but she will not remember the details after return to bed. Yet with the employment of the treatment outlined above, therapeutic abortion will become a rare operation.

DIAGNOSIS OF DISEASES ASSOCIATED WITH ENLARGEMENT OF THE SPLEEN.

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Certain cases that have from time to time come up in my own practice have made a rather thorough review of this subject desirable. The meagerness of the literature considering these diseases collectively has prompted this paper, and my aim has been to compile a reference list of such maladies and furnish from the liter-

ature and my own observations the main diagnostic features of each disease. It is hoped that such a grouping may be of some value to the man in general practice.

These diseases as a class probably arise in a large part from varying phases in the pathologic physiology of the spleen. The physiology of the normal organ is a problem as yet but partially solved. In the main it may be stated that it acts as a large filter bed interposed between the general circulation and the liver. The circulating blood comes into direct contact with the spleen tissue. The stagnation of the flow that follows allows certain elements which have been carried by suspension in the blood, to settle as it were and become altered in many instances before being passed on to the powerful destructive agencies of the liver. Indeed, there is evidence that certain cells of the spleen even have a selective affinity for some of these passing foreign substances which is comparable in many ways with the process of phagocytosis. These suspended elements consist for the most part of elderly, worn out red cells and bacteria. The former are practically entirely disintegrated by the spleen. Some of the resultant iron is stored within this organ and the remaining products are passed on for further alteration by the hepatic cells. Whether or not the spleen in any way prepares the retarded bacteria for further complete destruction in the liver, is not known. The capillaries of the spleen substance have no definite walls, but allow the circulating blood to seep promiscuously through towards the lower pressure of the portal circulation. Because of this intimate contact of plasma with spleen cells, we have long thought that various circulating toxins induce a hyperplasia of the splenic parenchyma and stroma, which in turn interferes in some manner with its functions of abstracting materials from the arterial blood on one hand, and the discharging of these in an altered condition to the liver, on the other.

LIST OF DISEASES.

In order to make a diagnosis of the diseases with splenic enlargement we must, as in most other instances, keep a list of the possible conditions thus characterized clearly in mind. A rather complete list of these diseases follows. The statistics concerning their relative frequency are so untrustworthy that I have for a matter of convenience grouped them into two divisions:

(A) THE RELATIVELY FREQUENT.

1. Leukemia.
2. Chronic Malaria.
3. Splenic Anemia and Banti's Disease.
4. The Cirrhoses of the Liver.
5. Hodgkin's Disease.
6. Pernicious Anemia.
7. Amyloid Degeneration of Spleen.

8. Acute Infectious Diseases in Adults.
9. Severe Infectious Diseases in Children.
10. Rickets.
11. Splenomegalies of unknown origin and still unclassified.

(B) THE RELATIVELY INFREQUENT.

12. Syphilis of the Spleen.
13. Tuberculosis of Spleen.
14. Movable Spleen.
15. Congenital Hemolytic Jaundice.
16. Cysts of the Spleen.
17. Malignant Tumors.
18. Tropical Splenomegaly.
19. Splenomegalic Polycythemia.
20. Abscess of Spleen.
21. Gaucher's Disease.

The above diseases may now be considered individually and the points of diagnostic interest duly emphasized.

LEUKEMIA.

There are two forms of the disease which differ somewhat in their clinical aspects. In the lymphatic form there is usually a bilateral enlargement of the lymph nodes of the neck, axillae and groins. The spleen is usually only moderately enlarged. When the cases are far advanced, however, its edge may reach out beyond the umbilicus. A blood examination is of such great importance in the splenomegalic diseases that it should be the very first thing to be done. In both of the leukemias the blood affords the only means of certain diagnosis. I saw a case of lymphatic leukemia with a total white cell count of but 25,000. The lymphocytes were 91 per cent. This merely emphasizes the fact that a careful differential leukocyte count should always be made. It is important to remember that the low counts as mentioned above do not persist as such but gradually ascend to the 100,000 mark or higher. In myelogenous leukemia progressive enlargement of the abdomen is at first the chief clinical symptom. It is due to enlargement of the spleen. The organ usually reaches an enormous size and practically fills the abdomen. Here too the blood examination offers a specific diagnostic test.

CHRONIC MALARIA.

When the disease is still in an active form the organisms (usually the estivo-autumnal), are to be found in the blood and at once settle the diagnosis. In non-active forms the history affords the only reliable data. If the person has never lived in the south nor in a real malarious district it may be excluded with great certainty on this knowledge alone. *Malaria is second only to rheumatism as a medical vagrant.* In districts where mosquitoes are almost unknown, malaria still remains a popular diagnosis among many physicians.

SPLENIC ANEMIA.

This interesting condition is characterized by splenomegaly with an associated secondary anemia. It usually begins in early adult life and runs a course of many years' duration. The patients feel fairly well in some cases but in others general malaise and weakness are prone to occur owing to the anemia present. Symptoms referable to the increased weight of the spleen are common and in a majority of the cases a yellowish pigmentation of the skin is present. Attacks of bleeding from the mucous membranes of the nose, mouth or intestinal tract often occur and may prove a troublesome feature. The total number of red cells is usually diminished to about 3,500,000 to 4,000,000 and the hemoglobin is lessened proportionately more than the decrease in red cells, thus causing the color index to be low. The total number of leukocytes usually falls below normal although they may be normal or sometimes slightly increased. There is a relative increase in the lymphocytes (1). Such a blood picture is not absolutely specific of splenic anemia, as a similar one has occurred in other of the splenomegalic diseases (2)-(3). It probably occurs much more frequently in splenic anemia, however, than in the other diseases under discussion, and it is upon a correlation of this fact together with the above clinical findings that we are justified in making this diagnosis.

BANTI'S DISEASE.

Most authorities now consider this condition to be a late or terminal stage of splenic anemia. The hypertrophic changes that have been initiated in the spleen pass on to the liver and similarly affect it. As a result the organ becomes enlarged and its surface smooth. This connective tissue deposit finally impinges upon the bile ducts and portal veins and gradually induces jaundice and ascites. The blood findings resemble those found in splenic anemia but are not so constant. A leukocytosis may occur (4). The anemia which was slight or moderate during the first stage now becomes much aggravated. The disease is to be distinguished from the cirrhoses of the liver. In the syphilitic variety, the history, evidences of the disease elsewhere in the body and the Wassermann test may be of aid. When the abdomen is not distended with ascitic fluid, a lumpy or irregular outline representing the liver border may often be palpated. In the alcoholic (fatty) type, the alcoholic history is important. Jaundice is slight at first and ascites is a relatively early and prominent feature. The liver border is smooth. In Hanot's cirrhosis, a fairly constant leukocytosis is present and ascites is usually absent. The liver border also feels smooth (5).

It may be impossible to differentiate these various conditions in their later stages, for in Banti's disease a true cirrhosis is induced, only brought about in a reverse order. In cirrhosis, the changes begin in the liver and then involve the spleen, while in Banti's disease the change begins in the spleen and secondarily affects the liver. Banti's is a spleno-hepatic, the other a hepato-splenic cirrhosis. The greater enlargement of the spleen and the past history of a prolonged left-sided abdominal distension accompanied by fair health, are points in favor of Banti's disease.

THE HEPATIC CIRRHOSES.

These were discussed under Banti's disease.

HODGKIN'S DISEASE.

The spleen may become very large in this affection. It is only seldom though that a patient will consult a doctor for relief from any symptoms referable to the spleen, in Hodgkin's disease. They usually complain first of glandular enlargement in the neck and the enlargement of the spleen may be first noticed by the physician during the course of the examination. There seems to be a rare form of the disease in which the lymphatic hyperplasia remains limited for the most part to the spleen.

Hodgkin's disease is to be distinguished from practically three other conditions: leukemia, tuberculous adenitis and lympho-sarcoma. Here as in the other members of this class the first thing to do is to examine the blood. This will rule out leukemia. The next step to be taken is the removal of one of the glands of the neck for pathologic study. The histologic structure in Hodgkin's disease is distinctive (6). After leukemia has been ruled out a frank enlargement of the spleen would favor Hodgkin's disease.

PERNICIOUS ANEMIA.

The unusual cases of this disease that are accompanied by great enlargement of the spleen may offer difficulty by centering attention on the spleen. The blood examination, the changes in the nervous system and the retained or increased body weight, serve to distinguish it.

AMYLOID DEGENERATION OF THE SPLEEN.

When it occurs it usually follows a chronic suppurative process elsewhere in the body. This seems to be especially true of chronic tuberculous hip-joint disease, and rectal syphilis in women. It is usually associated with similar changes in the liver. It should not be diagnosed clinically in the absence of such precedents.

ACUTE INFECTIOUS DISEASES IN ADULTS.

Typhoid and malaria are the ones of main importance. In typhoid, the Widal, other signs of the disease and the relatively slight enlarge-

ment of the spleen make the diagnosis clear. In malaria the plasmodium is to be found in the blood.

SEVERE INFECTIOUS DISEASES IN CHILDREN.

These should but rarely offer much difficulty. The leukocyte count usually shows an increase in the polymorphonuclear varieties. In certain chaotic states in children the blood may resemble somewhat that of leukemia, especially the lymphatic form. The lymphocytes may run up to 20,000 or 30,000 or more but do not persist in such numbers and continue to ascend to the 100,000 mark or higher as in leukemia. Moreover the marked glandular enlargement elsewhere is lacking.

RICKETS.

The youth of the patient with other unmistakable signs of the disease as the bone changes, rosary, environment, etc., distinguish it.

SPLENOMEGALY OF UNKNOWN ORIGIN AND STILL UNCLASSIFIED.

All splenomegalies with anemia and without other discernable symptoms should by no means be considered to be of the splenic type. There are many cases of chronic enlargement of the spleen without anemia and with no subjective symptoms and I think we are not yet justified in removing them from the unknown group until further investigations show the way. In this group also belong the cases of enlarged spleen noted in debilitated children, and the forms of splenomegaly occurring in the tropics not caused by the Leishman-Donovan bodies (7). Another class of "unknowns" is made up of those cases which we fail to diagnose clinically and which become "known" only at operation or autopsy.

SYPHILIS OF THE SPLEEN.

This is probably not as rare as some statistics would lead us to believe. It is to be suspected if the history is positive or if evidence of its pre-existence in other parts is found. When all other things have been ruled out as far as possible further recourse may be had to the Wassermann and therapeutic tests.

TUBERCULOSIS OF THE SPLEEN.

It is often stated that this may be "primary" in the spleen. This statement has not been proved beyond question and the evidence at hand would seem rather to make this view improbable. It is strongly suggested if active tuberculosis is going on elsewhere in the body or if good evidence is found of its previous existence. It cannot be diagnosed with any great degree of certainty.

MOVABLE SPLEEN.

The spleen may be found freely movable and in any region of the abdomen. It may under

such circumstances be palpated bimanually. An enlarged spleen in its normal position is difficult to palpate bimanually owing to the fact that its posterior portion lies up under the chest wall and the impulse made by the hand on the abdomen is not readily transmitted through the non-indentable chest wall to be appreciated by the other hand behind. The movable spleen still retains its characteristic shape and the notch in its border may be plainly felt. The condition is most often confused with a floating kidney. Through a thick and ridged abdominal wall it is usually impossible to distinguish the two. The wandering spleen may become fixed by adhesions in any part of the abdomen and in the lower part especially, may simulate ovarian tumors. Its pedicle may become twisted leading to sudden pain, vomiting and collapse symptoms, soon followed by rapid enlargement of the tumor. The diagnosis depends entirely upon being able to feel the characteristic shape.

CONGENITAL HEMOLYTIC JAUNDICE.

Here a peculiar pigmentation of the skin dates from birth or soon after. This may be followed after a variable period by splenomegaly. The stools are not clay colored nor is bile present in the urine. The disease shows a marked hereditary tendency and the patients as a rule feel quite well. The red cells are decreased in number with a relative increase in microcytes. The average red cell dimensions are thus lessened (8). The osmotic resistance of the reds is quite constantly reduced in contrast with the increase noted in obstructive jaundice. The white cell counts are usually normal.

CYSTS OF THE SPLEEN.

The hydatid is the most common form occurring in the spleen. The fact of a person having resided in a district known to harbor the parasites would offer a clue. In most cases recorded, a globular tumor was to be felt in the splenic region. The organ is not uniformly enlarged. Non-parasitic cysts often follow an accident to the spleen, and are virtually hematomata. The data for diagnosis is to be gleaned from the history and the finding of a cystic tumor in the region of the spleen. Cysts of the kidneys and ovaries are to be separated from this condition.

MALIGNANT TUMORS.

For all practical purposes it may be stated that carcinoma of the spleen does not occur. Sarcoma is also a very rare growth in this location. In the reported cases of the latter disease it has in most instances presented a rapidly growing uniform, splenic enlargement, with sometimes a nodular surface and accompanied by great pain. Emaciation follows as soon as metastases occur. This malignant course would

seem to help in separating it from the other members of this group.

TROPICAL SPLENOMEGALY.

This is as the name implies a disease of the tropical zone. It is characterized by great enlargement of the spleen, secondary anemia, extreme cachexia and chronic course, with an accompanying low grade fever. There is a specific animal parasite to be found in the blood aspirated from a puncture of the spleen. These Leishman-Donovan bodies, as they are called, are not found in the peripheral blood except in the last stages of the disease. A certain diagnosis depends upon finding the parasite. In persons recently coming from tropical regions this diseases and malaria should certainly receive first consideration.

SPLENOMEGALIC POLYCYTHEMIA.

It is a rare condition manifested by an enlargement of the spleen, cyanosis, chronic course and a great increase in the number of red cells. These may range from 8,000,000 to 13,000,000 and be associated with an increased viscosity of the blood. There is usually an accompanying gastro-intestinal disturbance. The marked enlargement of the spleen and chronic course are the points that distinguish it from various forms of valvular heart disease and plethoric states.

ABSCESS OF THE SPLEEN.

This may exist for years without symptoms. In some cases rapid enlargement of the spleen takes place associated with chills, local tenderness and high fever. A focus of infection is almost always present in some other part of the body. It is thought to be due to infarction, or an infection of a splenic hematoma following injury. It is very rare.

GAUCHER'S DISEASE.

This obscure condition is to be viewed in a new light following the work of Brill and Mandelbaum (9). It is characterized by great enlargement of the spleen and liver beginning in childhood and accompanied by a yellowish-brown pigmentation of the skin especially on exposed parts. It tends to occur in families. There is a peculiar yellowish-brown, wedge-shaped thickening of the cornea at each canthus of the eye. The disease runs a chronic course without much disturbance of health. The blood shows only a leukopenia.

In conclusion it might be well to emphasize the importance of making a correct diagnosis in the splenomegalic diseases, when such a thing is possible, as surgery now affords a cure for a large number of these conditions (10). Furthermore, a careful and systematic study of such cases will no doubt unveil this still mysterious

organ and ultimately lead to a definite knowledge of the splenic physiology

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HYPOEPINEPHRY.*

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We are somewhat surprised to learn that it was not left for the modern school of medicine to first make use of fresh glandular substance for the treatment of disease. We read that Pliny made use of fresh testicular substance in *impotentia virilis*; also Galen prescribed the fresh lungs of foxes in various lung disorders.

The use of internal organs in the treatment of disease was not uncommon during the middle ages. The liver of a mad dog was administered to the person bitten; oil in which the scorpion had been killed was recommended for bites of that insect. As absurd as the above may seem it was left for one Lux to excite our disgust completely.

Lux, whose enthusiastic interpretation of the familiar "*Similia similibus curantur*" led him to vicious extremes, founded the school of Isopathy. Pus, mucous, kidney stones, feces and so on were employed by Lux and his followers in treating diseases in which such excretions had originated.

It is with difficulty that one can separate the fraud, superstitions and empiricism of these ancients, assisted as they were by the gullible ignorance of their patients, from a system of organotherapy based upon some degree of experience and experimentation. Furthermore, it is not evident that either ancient or medieval schools of medicine made careful distinction between glands or organs in general and ductless glands in particular.

Even after the discovery of the adrenals by Eustachius, in 1564, nearly three centuries elapsed before ductless glands received serious consideration. It was Addison, who in 1854

by his monumental work on the disease bearing his name, called attention to the importance of the ductless glands.

It is the purpose of the writer to consider an often unrecognized condition due to an altered function of the adrenal tissue, viz. an under secretion of the gland substance. It is unnecessary to pause for any description of topography or gross anatomy of the adrenals. Suffice it to say the glands are composed of cortex and medulla, the former being known as the *interrenal* substance; the latter as the *chromaffin* tissue which develops from the anlage of the sympathetic ganglia.

Although an enormous amount of work has been done on the physiology of the adrenal our knowledge is still incomplete. Oliver and Schaefer were among the first to discover that an intravenous injection of the medullary substance of the adrenal gland produced a marked increase in blood pressure. Later, Langley, Elliott, Brodie, Dixon and Dale accumulated facts which expressed in the form of a law are: the effects of adrenal extract are everywhere essentially the same as stimulation of the sympathetic nervous system.

Both muscles and blood vessels are stimulated by adrenal extract. In some instances the blood pressure has risen to the extent that the mercury has been forced out of the manometer. Heart action is accelerated and strengthened by action upon the heart muscle and through stimulation of the medulla. Intestines and bladder contract or relax according to the animal or viscus in question exactly the same as from sympathetic stimulation. The pupil dilates the same as when the cervical sympathetic is stimulated. Without exception entire removal of the gland results in death even though the medullary pressor substance be administered from without.

The active principle to which we may attribute the above physiologic action is obtained from the medulla. That the substance is not obtained from the cortex is demonstrated by the following: fresh cortex of the horse has no such action; in animals having separate cortex and medulla the cortex is inactive whereas the chromaffin part produces the usual effect.¹ The active principle of adrenal extract can be produced synthetically but the synthetic product has but half the physiologic action of the natural and shows no optical activity while the natural product is levo-rotatory. However, the synthetic product can be split into two isomers of which the levo-rotatory is identical with natural base.

According to Shafer, adrenal extract is stored in the muscles and disappears from the body

*Read before the Kalamazoo Academy of Medicine May 26, 1914, and Calhoun County Medical Society, June 2, 1914.

1. Since the preparation of this paper I have noted Hoskin's article *Jour. Amer. Med. Assn.* June 6, 1914, p. 1803. It would seem from data quoted in this article that the cortex is of equal importance with the medulla.

by a process of oxidation in the tissues. It is not excreted in the urine.

Brown-Sequard developed the theory that all glands provided or not with secretory ducts give to the blood useful principles whose absence is felt after their extirpation or destruction by disease. Eppinger, Falte, and Ruddinger elaborated this theory in their work on the reciprocal action of the thyroid, pancreas and adrenals. In brief, they demonstrated the existence between these glands of an altruistic stimulation or inhibition. For example, removal of the thyroid produces an under secretion of adrenal substance due to loss of thyroid stimulation upon the adrenal and at the same time an hyperfunction of the pancreas through loss of thyroid inhibition on that organ. On the other hand hyperthyroidism produces a reversal of the condition cited above, namely, relatively lessened secretion of the pancreas and increased action of the adrenals.

The close relation between the adrenals and other ductless glands is frequently observed. Glynn and Hewetson reported seven cases of adrenal hypernephromata in the adult female associated with male secondary characters. Marchand cites a case of defective development of the genitals associated with hyperplasia of the adrenal cortex and accessory adrenal tissue in the broad ligament; also a case of feminine hermaphroditism associated with atrophy of the ovaries and hyperplasia of the adrenals. The relation between the adrenals and growth may be illustrated by the celebrated case of Linser: A boy of five and one half years of age with hypernephroma resembled a youth of eighteen. One might select from literature a number of cases of congenital malformation, retarded sexual development, osteomalacia, and status lymphaticus, all associated with hypoplasia of adrenal tissue. One finds too, cases of excessive growth, striking precocity and high blood pressure explained by a hyperplasia of adrenal tissue.

ETIOLOGY AND PATHOLOGY.

The etiology and pathogenesis of adrenal disease are not always clear. Formerly tuberculosis was regarded as the only serious pathological condition of these glands. It is now known that malaria, cold, trauma, alcoholism and syphilis are all etiological factors. Furthermore, Bittorf has come to the conclusion that disturbance of adrenal function may be due to a disease of either the gland itself or the secretory nerves.

Tuberculosis in some case is primary but in by far the largest number of cases is secondary to tuberculosis of the respiratory or genito-urinary tracts, vertebrae, peritoneum or mediastinal and other lymph glands. Both glands are usually affected; sometimes only one. Atrophy

may be simple or inflammatory. The glands diminish in size, there is destruction of the parenchyma and fatty degeneration and in inflammatory atrophy, a wide spread fibrosis of surrounding tissues, sarcoma, melanotic tumors and hypernephroma have been found. Syphilis appears most often in the form of gumma.

In adrenal disease the thyroid usually undergoes a diminution in size. The thymus is often found to be persistent.

The disease may occur at all ages between three and eighty years, oftenest between thirty and sixty years. It is observed more often in the male in the ratio of three to two.

SYMPTOMATOLOGY.

Clinically, the functional disorders of the adrenals may be considered as hyperepinephry and hypoepinephry, terms suggested by Bernard and Bigart. At present it is very difficult to differentiate between adrenal over secretion and high blood pressure from many other causes. Hypoepinephry occurs in three forms, acute, subacute and chronic. The acute and subacute stages are very different from the chronic which practically amounts to Addison's disease and which it will be impossible for us to discuss here except by way of differential diagnosis.

The essential features of hypoepinephry are myasthenia and hypotension. Blood pressure is almost invariably below the 100 millimeters Hg. The muscular weakness is gradual in onset and slowly progressive, affecting all muscles of the body. This may be so insidious as to escape particular notice by the patient for many weeks. The temperature is nearly always subnormal and the patient fatigues very easily. Occasionally one notes a stiffness or inco-ordination of groups of muscles. The patient develops an apathy of varying degrees of intensity; he sleeps well and as a rule his appetite is good.

Occasionally one finds gastro-intestinal disturbances such as anorexia, flatulence, constipation or diarrhea. Less frequently one finds hyperesthesia, pains in the head and lumbar regions and delirium. The blood as a rule shows no abnormalities unless it be a late anemia. The heart beat is faint, the pulse is easily compressible, sometimes slightly accelerated but most often very slow. The urine shows no changes which may be taken as constant or characteristic.

A sign of no small diagnostic value is the white line first described by Sergeant. This is an area of chalky paleness appearing one half to one minute after the skin is scratched and lasting for several minutes.

DIFFERENTIAL DIAGNOSIS.

Hypoepinephry must be distinguished from several condition, viz.: parietic dementia, melancholia, Grave's disease, hypochondria, myasthe-

nia gravis pseudoparalytica, chronic bulbar palsy, hysteria, neurasthenia, Addison's disease and typhoid fever.

The early stages of parietic dementia are characterized by many of the symptoms of hypopinephry but loss of memory, Argyll-Robertson pupil, tremor of the face muscles and tongue, and a feeling of well being serve to distinguish this disease.

Melancholia may be distinguished by the more marked mental depression and possibly by the presence of delusions and suicidal impulses.

The presence of exophthalmos, tachycardia, enlarged thyroid and tremor serve to differentiate Grave's disease but in cases which these symptoms are not very marked the diagnosis may be more difficult.

Hypochondriacs complain of various combinations of symptoms. Careful examination reveals no pathology but proper functioning of each organ.

Hysteria major is distinguished by paralysis of various forms, contractures, reversal of the color fields, convulsions and areas of anesthesia. In the milder forms of hysteria in which these symptoms may be absent the onset is sudden and headache, if present, is of the peculiar type known as hysterical clonus; hysteria is also distinguished by the sudden appearance, disappearance and shifting of symptoms.

Myasthenia gravis pseudoparalytica is a disease affecting especially the muscles supplied by the cranial nerves. The myasthenic reaction is characteristic of this disease.

Chronic bulbar palsy is characterized mainly by difficulties in articulation and swallowing, atrophy and paralysis of the face muscles, drooling of saliva and death from cardiac and respiratory paralysis.

Addison's disease, as stated above, is an exaggeration of the symptoms of acute and subacute hypopinephry, chronic hypopinephry to which is added in some cases a bronze pigmentation of the skin.

Neurasthenia is a disease in which the diagnosis depends more upon the subjective statements of the patient and upon observation of his general behavior than upon physical examination. It is a disease characterized by a general weakness of the nervous system together with local disturbances. There are certain mental symptoms typical of this disease viz. psychic depression, feelings of anxiety, intellectual fatigue, incapacity of decision and irritability.

Typhoid fever, in the majority of instances shows a characteristic temperature and pulse curve and the laboratory findings of blood, urine and feces are positive signs of this disease.

Unfortunately, hypopinephry is very rarely diagnosed by the general practitioner and with but little more frequency by the specialist. How-

ever, it is just as important that we recognize the early forms of this disease as that we diagnose the incipient stage of tuberculosis. Moreover, our inability, in the majority of cases, to treat this disease successfully, in the more severe forms, makes an early recognition all the more desirable.

The patient's expectancy is longest in uncomplicated tuberculosis of the adrenal; he may live eight, fifteen, or twenty years. Remissions and marked improvements are frequently noted in early cases. Death, if not from a superimposed disease, usually is caused by Addison's disease.

Patients presenting a gradually progressive muscular weakness, slow pulse and blood pressure below 100 millimeters Hg. should at once suggest a tentative diagnosis of hypopinephry. These patients should be given the hypopinephry test. A record of the patient's blood pressure should be made on three successive days, the heart should be examined for any organic disease. If this latter is absent the patient is given a standardized preparation of the extract of the adrenal gland in doses of three grains, three times daily for three successive days. If the blood pressure at the end of this time shows an increase of 10 per cent. or more over the original average a positive diagnosis can be made. It must be borne in mind that failure of this test is no more an indication of absence of the disease than is a negative tuberculin or Wassermann reaction proof of the absence of tuberculosis or syphilis.

TREATMENT.

Organotherapy rests upon the supposition that the same substance can be furnished the human organism from healthy animal glands which substance the human glands are not able to supply at all or only in an insufficient quantity. Accordingly, the treatment of impaired function of the glands of internal secretion consists in the administration of either a gland substance similar to the one effected or a foreign gland substance which has a stimulating action upon the diseased gland or of both.

Whenever the asthenia is at all marked the patient must be put to bed at once, extract of adrenal gland should be given in doses of one-eighth to one-fourth grain every hour until the blood pressure has been normal for at least two weeks. Larger doses may be given less frequently but the larger dose has no advantage over the smaller in increasing vascular and muscular tone and the frequent administration more nearly approximates the natural supply furnished the body. Thyroid extract in doses of one-half to one grain every two or three hours in the absence of contra-indications should be given for the stimulating action upon the adrenals. Extract of pituitary body or pituitrin

has a very decided benefit in these cases when given in doses of five to ten minutes, twice daily; after the blood pressure has remained above 110 millimeters Hg. for some time doses of one cubic centimeter every other day may suffice. The exact action of this drug cannot be discussed at this time. Orchitic substance or ovarian substance may be of great benefit in some cases.

Although organotherapy offers us the greatest amount of hope in these cases symptomatic treatment must not be omitted when indicated. Depression of the circulation may be relieved by hypodermic administration of strychnia and camphor in oil and, possibly, heat or cold over the heart. Arsenic and strychnia may prove useful tonics. Diarrhea if present may be controlled by large doses of bismuth. Creosote, hydrocyanic acid, champagne and ice are most useful in irritability of the stomach. Syphilitic treatment need not be discussed here.

Diagnostic and therapeutic use of tuberculin would seem to be indicated but experience has shown that alarming symptoms often follow its administration, hence it cannot be recommended except for hospital patients and then only at the hands of the most experienced internists. For the general practitioner it would seem best to omit the tuberculin treatment altogether.

Diet in all cases should be nutritious and easily digestible and often may be carried to the extent of forced feeding.

It must be remembered that valvular heart disease, arteriosclerosis, and nephritis are contra-indications to both the use of the hypopinephry test and the administration of either extract of adrenal gland or pituitrin.

CONCLUSION.

In conclusion, although there is still much to be learned concerning the active principle of ductless glands, we are aware of the blood pressure raising principle of the adrenal. We know too that there is a close relationship between the adrenals and the other ductless glands but the exact nature of this relationship we do not fully understand.

Hypopinephry is a distinct entity and should be treated as such.

We should constantly bear in mind the value of the hypopinephry test in all cases presenting symptoms of this disease.

Organotherapy offers the most successful method of treatment with which we are now acquainted.

Until we have a more exact knowledge concerning the action and dosage of tuberculin in hypopinephry its use should be confined to the most experienced.

CASE REPORT

History.—P. M. V., male, age 40, English nativity, married; came to the office December 30, 1913 on

account of very pronounced muscular weakness and tired feeling. The family history is negative. The patient has had no illness of any importance except two previous attacks similar to the present trouble, the first, twenty-two years ago and the second twelve years ago. All the patient can remember about these former attacks is the extreme ease with which he suffered fatigue, the very marked weakness and the feeling of prostration. His pulse was slow and his temperature was always normal or sub-normal. He suffered no gastro-intestinal symptoms and no nervous symptoms. His appetite was at all times fairly good and he slept well. An examination of the blood was made but the patient does not know the findings. The blood pressure was not taken. The diagnosis made was ambulatory typhoid.

The patient has three children all well and showing no gross malformations. Two of them, girls, are of normal size for their age but the boy who is twelve years of age looks to be only about eight. The patient is somewhat undersize as compared with the average and compared with his own immediate relatives he is considerably smaller.

Symptoms.—The present symptoms began last August with weakness and heaviness of the lower legs and more than ordinary susceptibility to fatigue. The patient gave this little thought at first but for the last two months these symptoms have been very pronounced. The patient can not account for his present condition except possibly overwork. He has had no other symptoms of any other system, cardio-vascular, gastro-intestinal, genito-urinary or nervous.

Physical Examination.—Showed a well nourished body slightly undersize; skin of fairly good color; sclera clear, pupils reacted well to light and accommodation; tongue clean, teeth were in bad condition; chest fairly well developed. Percussion and auscultation revealed nothing abnormal. There was no eruption of any kind, no rose spots. The pulse was regular, tension low, rate forty-three per minute, respiration twelve, blood pressure ninety millimeters. Hg., temperature per rectum 97.4 F. Blood showed more than 100 per cent. hemoglobin by Talquist scale; red blood cells 4,890,000, white blood cells 7,500. Wassermann test was not made and the agglutination test was not done. The urine was normal in amount, contained no sugar or albumen but occasionally phosphates and amorphous urates.

After being given the hypopinephry test, the patient's blood pressure gained 15 millimeters. Hg. or 16⅔ per cent. The patient vomited twice Feb. 2, the only evidence of gastro-intestinal disturbance during the whole disease. His appetite was always good and he slept fairly well during the whole time.

Treatment.—After six weeks of organotherapy and symptomatic treatment such as was described above the patient was able to be dressed and walk about for three or four hours at a time. Gradual improvement has been noted until now all that the patient can notice of the original trouble is a very slight heaviness below the knees. He is now doing his own farm work.

Tuberculin was not used either in a diagnostic or therapeutic way partly on account of the dangers attending the administration and largely on account of the promptness with which the patient responded to the treatment given.

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GENITO URINARY INFECTIONS, MORE ESPECIALLY THOSE ORIGINATING IN THE KIDNEYS.*

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I desire in this paper to merely give a general review of infections of the genito-urinary tract, more especially those originating in the kidney, and shall touch on some points in the pathology and diagnosis of this important class of diseases together with a brief discussion of the treatment both medical and surgical.

During a year spent in the Massachusetts General and the City Hospital of Boston, two or three years ago, I was particularly impressed with the great advancement in knowledge which has taken place in the past few years in relation to these diseases. I spent some time working under Dr. Hugh Cabot and other specialists in this work, and since locating in St. Johns, it has been my fortune to have an opportunity to investigate and treat quite a large number of these cases. In the first place, a patient presenting himself or herself for examination, affected with infection of the genito-urinary tract, may or may not have as the most prominent symptoms, cystitis with frequent and painful urination, straining, etc. Some cases may have tenderness or enlargement of the kidney or along the ureter, with abundance of pus in the urine, bacteria present and still no cystitis. We have under our care at present two cases with pus and active infection of the kidney in one of which I have lately removed the right kidney for multiple abscesses and in neither case is there the slightest sign of bladder infection or inflammation. Nevertheless, the great majority of genito-urinary infection cases have cystitis.

CYSTITIS A SECONDARY DISEASE.

The profession has been a long time in recognizing that so-called cystitis is nearly always a secondary disease. In fact experience and observation has taught us that the bladder is not often subject to disease primarily, and that

any infection of the bladder is always the result of disease elsewhere. Many times the experiment has been tried of injecting virulent cultures of disease producing bacteria into the bladder with no resulting inflammation unless the bladder is first traumatized or over distended, so as to produce a lessening of the resistance of the tissues and thereby a lowering of the resistance of the cells to infection. These experiments have taught us that there is far more danger of producing infection in the bladder by over distending it than there is by the use of soiled catheters alone, for many times bacteria in the process of elimination from the body by way of the kidneys and which would otherwise pass out with the urine without harm, have an opportunity to produce infection in a bladder which has previously been over distended and natural resistance lowered thereby.

All cases presenting themselves with the symptoms of genito-urinary infection, pus in the urine, cystitis, etc., should have a careful and thorough physical examination as well as a careful laboratory analysis and examination of the urine. The cystoscope is necessary in nearly all cases and in many, ureteral catheterization will also be required. In such cases, we get the urine through a sterile catheter and with all aseptic precautions, we then examine the sediment obtained quickly with the electric centrifuge for gonococci or other pathogenic bacteria and then culture out the balance of the sediment. We follow the investigation far enough to get a pure culture of any bacteria found and to definitely decide as to what bacteria are present.

In males infection originating in the prostate, epididymis or vas must be considered, but if these can be eliminated as a cause and in both sexes if gonorrhea can be eliminated then we must look to the kidneys for the source of the infection.

In cases with severe cystitis the cystoscope and especially the ureteral catheter can only be used after suitable treatment has allayed the irritability of the urethra and bladder and relieved the inflammation at least to some degree.

A careful study of the interior of the bladder with the cystoscope will always be of great assistance to the examiner in deciding between tubercular infection and other pathological lesions such as papilloma, etc., as the appearance of the lesions are often very characteristic.

KIDNEY LESIONS.

While there are occasional cases where both kidneys are infected, designated bilateral infection, still in the great majority of cases the infection is unilateral, with only one kidney infected. Ureteral catheterization will easily demonstrate which one is effected, normal urine being obtained from one kidney and urine con-

*Read at Lansing before the Ingham County Medical Society, February 17, 1914.

taining pus from the other. We then have to consider the various diseases which might produce the condition found.

Tubercular infection of the kidney, stone in the kidney, pyogenic infection of the hilum, single or multiple abscesses of the kidney tissue and occasionally ulceration or stricture of the ureter are the most important. The X-Ray will assist in deciding as to the presence or absence of stone. Tuberculin skin test, white blood cells count, appearance of the bladder and absence of other bacteria will help to decide as to tubercular infection. Tubercle bacilli in pus from the urine can only rarely be demonstrated. All of these methods in some cases fail to give the desired information and it is then necessary to inject some of the inspected sediment, obtained under aseptic conditions, into the peritoneum of a guinea pig. A post mortem, four to six weeks later, will in tubercle bacilli infection reveal the characteristic lesions of tuberculosis and the bacteria in abundance.

Physical examination of a diseased kidney will oftentimes give valuable information. Enlargement, tenderness, displacement and even fluctuation can in many cases be demonstrated and will aid materially in forming a conclusion as to the condition existing.

An X-Ray taken after the injection of collargol, 10 per cent. solution, into the ureter and pelvis of the kidneys will reveal strictures or other abnormalities of these structures and the relation of the ureter or kidney to shadows, suspected as a stone in previous X-Ray plates.

Acute infections of the kidney are accompanied by fever, chills, and other pronounced symptoms of acute illness. These cases, especially when drainage through the ureter is deficient, require immediate operation and even then many of them have a fatal termination.

TREATMENT OF KIDNEY INFECTIONS.

When we approach the subject of treatment for this class of cases we have many things to consider: character of infection, length of time it has existed, amount of tissue changes or destruction which has taken place, general physical condition of the patient, his financial circumstances and environments. All these things will have a material bearing upon the decision as regards the treatment of many cases, although in some cases the indications are so plain that there is no doubt as to the right treatment to be employed.

There are two methods of treatment, surgical and non-surgical, and while in many cases surgery is the only recourse, still, there are some cases in which if suitable measures are taken there is a fair chance of cure without operation.

In cases where we can be sure that the infection is not tubercular, is situated in the

hilum of the kidney and no stones are present together with a good general condition of the patient, the use of urinary antiseptics such as urotropin, plenty of water, the injection of 10 per cent. argyrol into the hilum of the kidney, and, what is, in my opinion, of most importance, the use of an autogenous vaccine which must be used persistently and continuously over a long period of time, will in about 35 per cent. of these cases result in a cure. In the rest of the cases surgery must be the final resort.

Some cases of bilateral tubercular kidneys and occasional cases of unilateral tubercular kidneys have been treated with tuberculin and general antitubercular treatment and the reports from these cases show a small per cent. of cures. Nearly all other cases of kidney infection require operative treatment but many things must be further considered and prepared for before undertaking an operation upon the kidney.

Tubercular kidneys nearly always require removal. Kidneys infected with colon bacilli, staphylococci or other pyogenic bacteria may merely need to be drained or may require removal. This can only be decided after the kidney had been explored for the amount of pus or the severity of the symptoms are not always a true criterion of the severity of the infection or of the amount of tissue destruction which has taken place.

Stone in the kidney must be removed and in some cases it seems best to remove the kidney also, at least when destructive changes have gone to a considerable degree. Before the operation is undertaken it is necessary to carefully test out the function of the other kidney and to be sure that it is healthy and in a good state of functional activity. The pheno-sulpho-phthalein test is now used to test the kidney function and I can say from my experience that it is very satisfactory if properly performed and enables one to be fairly certain as to the ability of the healthy organ to carry on this function for the body. Stimulation of the kidneys with plenty of hot distilled water for a day or two before the operation will assist in preventing failure of urinary excretion, following the operation.

We usually give calcium chloride after drainage of the kidney with the hope of diminishing the tendency to secondary hemorrhage which so frequently occurs. Where we have removed the kidney, as soon as possible afterwards, we give sodium citrate in ten grain doses at frequent intervals to reduce the clotting power of the blood, hoping thereby to reduce the tendency toward embolus. This often occurs from the formation of a clot in the short renal vein which, if the patient is allowed to move around too early, breaks loose and enters the venous circulation and passes to the heart or lungs re-

sulting in sudden death. Slipping of the ligature after the removal of the kidney has often occurred. This may be prevented by tying the pedicle twice and sewing the ligature fast with fine silk or by leaving on a pair forceps for forty-eight hours.

Drainage in many cases is necessary at least for a time. In cases where the kidney has been drained, if a chronic fistula remains and the destructive changes in the kidney go on it is often necessary at a later date to remove the kidney and this can be done later, much more safely than at the time drainage was established. In some cases of pyogenic infection of the kidney with evident abscess formation it is impossible to pass the ureteral catheter owing to distortion of the ureter from ulceration and chronic inflammation, although it may be easy to catheterize the ureter on the healthy side.

In these cases where the ureter is plugged or closed, to drain would surely produce a chronic fistula and in such cases it would be better to remove the kidney. To decide this point, I have followed a method used by Dr. Oschner at Chicago. This consists in injecting, after the kidney is opened, a sterile solution of methylene blue down through the ureter from above, a catheter being in the bladder at the same time. The appearance of the blue in the bladder allows the drainage with fair assurance of cure.

MORTALITY.

Statistics show a greater mortality from drainage of the kidney than from its removal. While the shock is less in the former procedure, the greater danger of secondary hemorrhage from the friable kidney in drained cases more than counter balances the lessened danger from shock. Authorities give 10 to 20 per cent. mortality in removal of the kidneys and 25 to 35 per cent. mortality in drainage cases. This large mortality danger can be greatly lessened in individual cases by close attention to the details in preparing the patient for the operation, careful technic when doing it, and constant watchfulness by both surgeon and nurse afterwards. A better understanding and appreciation of the dangers will allow many of them to be eliminated in future work.

Cystitis, when the result of kidney infection, even if tubercular, usually rapidly disappears as soon as the primary foci of infection is removed, at least under suitable treatment and to the great relief of the patient. I have removed a kidney and found many enlarged glands around it which could not be removed with safety at that time. After draining for a long time and using an autogenous vaccine, the enlarged glands disappeared in my case. Occasionally it is necessary to do a secondary operation to

remove them. In tubercular cases it is necessary to be especially careful about spreading the infection during the operation.

CONCLUSIONS.

The whole subject of genito-urinary infection is one of great interest to me, as the remarkable increase in knowledge of this subject during the twenty years I have been in practice has put us in position to do far more for this class of cases than formerly. No doubt the invention and development of the cystoscope and the X-Ray have been the most important factors in stimulating investigation and research along this line. There is room for still more progress in the more accurate diagnosis and safer surgical treatment of genito-urinary diseases. Many other points in preparation, technic and after care might be taken up did time permit. A careful study of the mortality statistics, complications met with, technic used, etc., of many hundreds of cases is very necessary to enable the surgeon, unless possessed of vast personal experience, to be prepared to successfully cope with these grave conditions, to most safely perform the operations needed and to restore to health the highest possible percentage of his patients affected with the various infections of the genito-urinary tract.

WEST INDIAN IMPRESSIONS.

WILLIAM J. STAPLETON, JR., M.D.
DETROIT, MICHIGAN.

When anyone goes on his travels, he has something to recount.—Claudius.

In his new book entitled, "What Men Live By," Dr. Cabot has divided the activities of human life into four grand divisions: Work, Play, Love and Worship.

After a winter of "Work" I felt the desire to "Play" and as a result on March 11th I sailed from New York on the S. S. Victoria Louise for a cruise to the West Indies. The weather was intensely cold and as we slowly moved out of the harbor my overcoat was none too warm. After getting settled in my stateroom I started to read up on the West Indies. The book that appealed to me the most as an all-around good guide was Sir Frederick Treve's "Cradle of the Deep" in which King Edward's surgeon gives his impressions of a trip to the West Indies. I enjoyed this book very much and can recommend it highly. The next book—which is a veritable Baedeker, is F. A. Ober's "A Guide to the West Indies." I abstract from it the following:

"The West Indies consist of an immense number of isles and islets, with a total area of 92,000 square miles, lying between the continents of North and

South America, and consists of the Bahamas, the Greater and Lesser Antilles. Nearly all the Islands are mountainous. They present every variety of scenery from the coral island wash with the waves to the grand mountains of Cuba, Jamaica, Haiti and Dominica. The volcanoes are all in the Lesser Antilles. The climate is tropical with a heavy rainfall. The temperature averages about 72 degrees for the cool months and 80 degrees for the warm months of summer. On a whole the climate is extremely healthy and conducive to longevity."

Our ship carried some 281 passengers beside a large crew. There is a fine promenade deck and all the luxuries of a modern steamer, including a swimming pool which is a fine thing after a day of sightseeing in the tropics. The ship surgeon, Dr. E. von Beaulieu Marcanay, had a busy time of it from the beginning of the trip to the end. On the second day out we ran into a tail-end of a storm off Cape Hatteras—results, nearly everybody was seasick, among them "yours truly." I was very much displeased with myself as two previous Atlantic voyages had given me the impression that I was immune. As the man in the story, he had no grudge against the fishes, but there was "something he had to give up"—the less said the better. Only those who have suffered with "*mal der mer*" can appreciate one's feeling.

CHARLOTTE AMALI, DANISH WEST INDIES.

Our first stop was at the Virgin Islands as Columbus called them. At 8:30 a. m. we entered the harbor of St. Thomas, one of the finest in the West Indies. It commands one of the sea approaches to the Canal. Most of the inhabitants are negroes, there being only about 200 whites. After visiting the town I went to the Communal Hospital, situated on the outskirts of the town in a very pleasant location. It is a queer little collection of one story buildings surrounded by a wooden fence. One building was the hospital for the white people, one for the colored, a little insane asylum with ten inmates, a room for the inspection of prostitutes, a clean operating room and a small cottage for the nurse. Here I met Dr. Mortensen and Sister Aagard who showed me over the place. Dr. Mortensen is a Danish physician who has resided for twenty-four years on the Island. Formerly he was surgeon for the Danish Navy. I was invited to breakfast by the doctor and the visit with him is one of the pleasant incidents of my trip. He is a well read man—bachelor—lives in a house in the side of the hill. The term "one of nature's noblemen" can be applied to him and fits exactly. Besides being in charge of the hospital he is Port Doctor and must meet every incoming boat. There are two other physicians on the islands, but he is the leader. In the hospital was one case of pellegra, many bronchial cases, and among the negroes syphilis and gonorrhea with their results. The prostitutes are

examined once in two weeks. If a woman does not report and is found infected she is put in the chain gang to clean the street. You can imagine they are very prompt in reporting.

SAN JUAN, PORTO RICO.

The next morning on awakening I looked out of my port hole at the walls of San Juan. After a walk around the city I visited the Military Hospital where I met Major Dutscher. He conducted me about and explained the various things of interest. The hospital is of Spanish architecture and about 75 years old, very neat and clean. The troops are mostly Porto Ricans with American officers. In the laboratory I was shown some filaria slides. The inspection for venereal diseases was being made as we walked about. The men stood in rows and the officers passed along and made the necessary inspection. Failure to report intercourse and proper care results in loss of pay and punishment. There is plenty of gonorrhea and syphilis. Salvarsan is not used because of lack of facility for making the Wassermann test. Mercury and potassium iodide are the standbys. Major Dutscher informs me there is a great deal of tuberculosis among the natives on account of their herding together and sleeping without proper ventilation. Out in the harbor is a lazaretto for the lepers, there being about fifty at present. Near the hospital is a very large insane asylum.

KINGSTON, JAMAICA.

In the heart of the old "Spanish Main" is Kingston, a hot dusty city which still shows evidences of the earthquake of some years ago. The Kingston Hospital is a government institution arranged on the pavilion plan. The three original buildings were used in the early days as an insane asylum. Under the guidance of Dr. Castle, the medical officer in charge, I was shown about. Everything was extremely neat and clean. The nurses are native with an English head nurse. The patients are mostly negroes and the diseases most commonly met with are syphilis, gonorrhea, tuberculosis, filaria and malaria. Among the Chinese and Coolies they find beri-beri. Due to the heat of the sun and the uncleanness of the negroes there are eye diseases a plenty among the negroes. During certain seasons typhoid is common.

"VOMITING SICKNESS."

Doctors Scott and Catto, in the laboratory of the Kingston Hospital, are working on a disease known as the "Vomiting Sickness." This is a peculiar disease, which occurs during the cooler months. It attacks children under the age of six years in 60 per cent. of the cases. The child goes to bed at night apparently well,

is awakened suddenly with vomiting, chills, fever and convulsions and in a few hours is dead. As yet they have not been able to find the cause or to isolate any particular germ in the secretions or excretions of patients dying from what for want of a better name is termed "Vomiting Sickness." The men were very cordial and I enjoyed my visit.

In the post-office at Kingston is the following sign: "Quinine for Sale," "price, one farthing." For one-fourth of a penny you can buy five grains of quinine and thus be ready when the "Malaria Bug" bites you.

CANAL ZONE

From Kingston we steamed to Colon for a day's visit to the greatest wonder of the 20th Century—the Panama Canal. I will not give any extended account of our "quicksteps through the Zone" as every phase of it has been covered. After a lunch at Uncle Sam's Hotel I drove up Ancon Hill and under the guidance of Edward W. Mitchell, District Sanitary Inspector, I was shown about the buildings and grounds. There are some thirty buildings on the Hill, originally built by the French, who showed excellent judgment in putting them on the Hill, but who did not know that screens were necessary. Every unit is elevated from the ground and all windows and doors are screened. There are separate wards for the black and white, units for maternity cases, surgical, medical, venereal, eye, ear, nose and throat; in fact, there is a very complete equipment. We all realize now that it was medical science that made possible the building of the Canal. There are plenty of cases of bronchitis, pleurisy and venereal disease without end.

Prostitution in Panama is confined to a restricted district under police supervision.

The difference in the conditions before and after the Americans took over the Canal Zone can best be described by the following:

Fronde, who visited the West Indies in 1885, wrote:

"In all the world there is not, perhaps, now concentrated in any single spot so much swindling and villiany, so much foul disease, such a hideous dung heap of moral and physical abomination, as in the scene of this far-famed undertaking of the Nineteenth Century engineering—the scene of operations is a damp, tropical jungle, intensely hot, wet, feverish, swarming with mosquitoes, snakes, alligators, scorpions, centipedes, and the home even as nature made it, of yellow fever, typhus and dysentery, and now made immeasurably more deadly by the multitudes of people that crowd thither."

The result of American medicine under Gorgas.—The region is as free from infection as the United States and is becoming known as a health resort. Yellow Jack has been absolutely abolished since 1906. During 1907 not a case of Bubonic Plague and the death rate in all other diseases has diminished in ratio. All

hail to the heroes of Medical Science who made this possible—Lazear, Finlay and Carroll.

VENEZUELA.

The bugle notes of:

"Wake up, you sleepers, big and small
This is the captain's early call
He bids good morning every guest
Get off, you sleepers, from your rest."

Up on deck I saw for the first time the coast line of South America. We were anchored on the roadbed of LaQuayria, the seaport of Venezuela. Taking a little toy train we rode for three hours up to the Capital, Caracas, a beautiful mountain ride. After lunch I visited the "Hospital Vargas" a charity institution situated on the edge of the city. The nursing is done by the Sisters of Charity. There is a nicely arranged series of wards, one side for the males and another for the females. Between each ward is a fine tropical garden which to my mind helps to cheer up the otherwise severe lines of the buildings. The kitchen was unique; instead of metal stoves, there was a large circular mass of cement with pockets at intervals topped off with grate, under this was placed the fuel (charcoal). Each division of medicine has its own ward, surgery, clinical, medicine, maternity, etc. The whole place was absolutely neat and clean. The buildings were only one story high with plenty of windows, each ward being connected by means of a verandah. Many cases of syphilis were seen and other skin diseases. There were apparently plenty of maternity cases. Several wards were provided with screened beds for observation of suspected cases. Would that every hospital in the world could have such beautiful gardens.

PORT OF SPAIN—TRINIDAD.

This town impresses me the most of any in the West Indies, it is so neat and clean.

My morning walk took me to the Police and Colonial Hospitals, where, under the kind direction of Dr. Greaves, Junior Residence Physician-in-charge, I was piloted through his fine Tropical Hospital. It is strongly built of stone and brick, with wide front and back verandahs. There is an abundance of air. The hospital is an English Government Hospital with black nurses and two English supervisors. Everywhere things are as neat as a Dutch kitchen. The patients are nearly all black or coolies divided into paupers, part pay and full pay; the last named have a little pavilion to themselves. There is a maternity service of about five hundred cases a year. The women are only kept five days in the ordinary simple case.

Diseases.—Among the negroes tuberculosis is common with venereal disease especially prevalent.

Granulomas—Saw several of the most mark-

ed character, involving the vulva, treated by excision with good results. Bright's Disease is extremely prevalent. The negro woman, as in this country, has many fibroids. Last week the doctor told me they did three cases.

Coolies—The coolies are brought from India under indenture and after serving five years are released. Many of them live in what is known as the "Coolie Village" just at the end of the Port of Spain. They do not take care of themselves and are especially prone to ulcer which usually attain a very large size. I saw a great many cases in the Hospital.

Eclampsia—Eclampsia is rather common among the negro women. The Rotunda Method is used and the Doctor told me he had seven cases without a death during the past year. Hookworm is prevalent and is treated with thymol, a dose being given every third day until stools are free. Malaria and typhoid are, of course, very common, as is dysentery. Cases of yellow fever appear from time to time. Suspicious cases are confined to a screen room for diagnosis.

The operating room is floored with colored tiles, is large and airy with complete equipment. Operations are performed in the afternoon, following the English custom. Chloroform is the anesthetic used: cocaine when indicated. There is a fine *post-mortem* room and every case is examined unless permission is refused.

THE LEPER HOSPITAL AT PORT OF SPAIN.

Leaving the Colonial Hospital I took a Four-roads tram through the Coolie Village to the place of "Living Death." The lazaretto is enclosed by a ten foot high galvanized iron fence. Pushing open the gate I was stopped by a negro at the little Lodge Gate who asked me my errand. I told him I was a physician. He rang a bell and said to go straight ahead and I would see one of the Sisters. Sure enough, as I entered the second enclosure I met a Sister of Charity belonging to the Dominican Order. Under her guidance I was brought to the Mother Superior, and they conducted me through the various parts of the Hospital. The grounds are large and ample to accommodate the three hundred and more inmates. There are separate apartments for the men, women and children—some of the children are mere babies. The Sister told me some of the inmates live to be very old. One of the pathetic sights was a leper teacher with a class composed of little boys and girls learning their A. B. C's. Much of the work is done by the inmates. There is an excellent bakery, laundry and a little garden. Visitors are allowed twice a week. Some of the inmates with the milder form are allowed to enter the city on a pass. It is terrible to think that over three hundred people

are behind those walls whose only end is the little graveyard which lies on the hill nearby. Strange to say, there has never been a case of leprosy among the Sisters or Attendants.

YELLOW FEVER AND BUBONIC PLAGUE.

Much to our disappointment, quarantine regulations from time to time interfered with our plans. At Trinidad we were not allowed to go to LaBrie or the "Pitch Lake" where all the asphalt comes from because of a case of Yellow Fever. Havana was also denied us because of Bubonic Plague. Flees carried in sacks of sugar and not rats are responsible for the recent cases of Bubonic Plague according to Surgeon John Ginteras, who is director of Sanitation in Cuba. The palm trees on the Islands have pieces of metal nailed around and so arranged that the ends flare out thus preventing the rats from hiding themselves in the cocoanuts.

BRIDGETOWN—BARBODOES.

There is a very good general Hospital here and a lunatic asylum. At one time this was a headquarters for the West Indian troops but they have been withdrawn. The Military Hospital is now empty and forlorn looking.

ROSEAU, DOMINICA, BRITISH WEST INDIES.

In this sleepy little town was a small wooden structure surrounded by a wall and a garden. While small and simple in plan it was very neat and clean.

Dr. A. Alfred Nichols, the Senior Physician, was in England on a visit. He is noted as a naturalist and has made a careful study of the Island and its natural resources. His long residence has made him an authority on everything relating to Dominica. Nearly all the lime juices used in commerce comes from Dominica.

Under the guidance of Mr. Edwin R. Jarvis, the clerk of the Hospital, I was shown about. Accommodations are provided for about seventy-five people. The diseases prevalent in Dominica are pellegra, pneumonia, malaria, dysentery, and, as in all seaports, venereal diseases are rampant. They have had no typhoid in three years. Never a case of yellow fever.

SAN DOMINGO.

The city of San Domingo, said to be the oldest city in the Western Hemisphere, boasts of a large Military Hospital. In this land of revolutions and graft I found the "Hospital Militar" to be everything it should not be.

A sentry forbade my entrance but I sent in my card and was shortly invited to enter by Dr. Pedro B. Coiscore, a native, but educated in the University of Havana. He very courteously conducted me around the buildings. This is the poorest hospital I have ever visited.

The place is not clean. The patients are, many of them, suffering from gunshot wounds, and in nearly every case of wound or operation the case was infected. All nursing is done by men. There were many cases of syphilis. Salvarsan was being used with very favorable results.

The operating room was very ordinary—a table and a few instruments. It didn't look as if it had been used very recently. The whole place was apparently run in a most shiftless manner.

My guide told me very sincerely that it could not be run otherwise because of the country's condition. Revolution after revolution, and utter lack of stability made such a thing impossible. At the time of my visit the situation was that of war time. Machine guns were planted so as to command the entrance of the Port and the President's Palace.

NASSAU, NEW PROVIDENCE, BAHAMA ISLANDS.

The Colonial Hospital is situated on the side of a grassy hill and consists of several nice buildings. It is a rather old place—has male and female wards—an infirmary for paupers, a lunatic asylum and a lazaretto for lepers. The operating room was very neat and complete. There was no running water but dishes were used instead. Instruments are sterilized by use of electricity and alcohol lamp. There are seventy-five beds, eight native nurses, with two English supervisors. From Nassau we steamed to New York and soon my trip was at an end.

To anyone who wishes a delightful trip where there is a constant change, not only in people but in foods and scenery, I can recommend the West Indies. Here we can eat breadfruit, yams, oranges, lemons, mangoes, custard apples, cashew, shaddock, star apples and many other curious fruits. Our thirst can be quenched with cocoanut water, green swizzle, planter's punch and good coffee.

"God gave all men all earth to love
But since our hearts are small
Ordained for each one spot should prove
Beloved over all."

176 Lafayette Boul.

FRACTURE OF LEFT TEMPORAL BONE.

JOHN T. COOPER, M.D.
MUSKEGON, MICH.

Patient, P. J., age 21, on the afternoon of June 5, while partially intoxicated either fell down or was knocked down with some blunt club, producing the condition shown in the photographs.

This patient wandered away from the place of accident and after about one hour was picked up by the police who supposed him to be a common drunk. He was taken to the police station and there left without any medical attention

until he died about 3 o'clock the following morning without his true condition being discovered. As the photograph shows there is a fracture of the left temporal bone, the fragments of the fracture punctured the middle meningeal artery producing a hemorrhage and concussion, followed by death.

The reason I have presented this case and photograph is two fold: First, That every person who may be found lying on the street is not a drunk as most of our common policemen think. Second, In case where a person is found



lying on a road or street in an unconscious condition and after being taken to a police station or county jail he is under all human rights entitled to an examination by a physician and he should be given proper medical attention. Now to resume; In this particular case there was only a slight cut of the middle meningeal artery as the patient showed that the hemorrhage was very slow, because it was some time after the injury that he became completely unconscious. Had this patient been given the proper medical attention when he was taken to jail and surgical measures been employed as

indicated this patient would, under normal conditions of aseptic surgery, have had a fair chance for recovery. This contribution is not intended to be an article of science but to con-



vey to every practitioner a condition which occurs in every city and which we as guardians of public welfare should use our best influence to correct.

REPORT OF A CASE OF APPENDICITIS OF UNUSUAL SYMPTOMATOLOGY, SHOWING THAT THE SYMPTOMS OF THAT DISEASE MAY BE MARKEDLY DIVERSE AND CONSEQUENTLY MISLEADING.

J. D. MATTHEWS, M.D.
DETROIT, MICH.

History.—The patient, an auditor, 31 years of age, a strong, robust individual in an excellent state of nutrition, gave the following history of his so-called "dyspepsia," which dated back to April 8, 1912, to an illness of six weeks' duration, during which period he complained of pain and distress in epigastric and right hypochondriac regions. Three different physicians in his home city told him he was suffering from nervous dyspepsia.

A second attack occurred on June 10th of that same year. It came on with an abrupt onset with abdominal pain, principally in the epigastric region. Pain was accompanied by nausea but no vomiting.

October 5, 1912.—A recurrence—simulating the attack in June. This was of four or five days' duration. A physician at that time told him his trouble was caused by "incompetence of the colon valve."

February 1, 1913.—Ill again for two or three days, and the same diagnosis was made.

June, 1913.—Another attack. A physician in Buffalo who saw him in paroxysms of pain made a diagnosis of renal calculus.

September 1, 1913.—He was ill again for four days, but did not consult a physician.

February 12, 1914.—He was ill again for one week, but his physician did not venture a diagnosis.

April 18, 1914.—He appeared at my office for examination. In addition to the foregoing, the following history was elicited; each attack came on suddenly, pain radiating over the entire abdomen, no localization; the onset and course of symptoms in each attack, always about the same; after each attack, a slow, dragging convalescence. During the intervals between attacks he referred to more or less gastric disturbance in the way of fermentation, but at no time complained of any pain in the right iliac region. Having never had an opportunity of seeing this individual in an attack, I was compelled to base my judgment entirely on the history, and made a tentative diagnosis of appendicitis. In order to confirm my findings, I sent him to the office of Drs. Hickey and Evans for a radiograph, which was splendidly accomplished after a painstaking technic. The Rays show a corkscrew shaped appendix in the latero caecal position in the right iliac fossa just inside the brim of pelvis; the bismuth retention proving the pathology. After week's preparatory treatment, he entered Grace Hospital April 27th and I removed the appendix with the utmost facility on account of the X-Ray having determined its position, making it readily accessible. The case ended in a speedy recovery.

Pathology.—An appendix increased in size to the thickness of a man's finger. Showed evidences of a chronic exudative inflammation. The entire walls were markedly thickened and infiltrated, especially near its base. The cavity contained two large fecal concretions. It is extremely rare in a case of appendicitis with recurring attacks of such severity and frequency, without vomiting or localized pain and tenderness in the right lower quadrant of the abdomen or rigidity of the right rectus muscle and without the patient in any of these attacks being aware of fever or a chill.

OF DIAGNOSTIC IMPORTANCE.

1. The chronicity of the disease with the frequent acute attacks which generally lasted several days and gradually subsided.
2. Abdominal pain the prevailing symptom.
3. The nausea.
4. A moderate leucocytosis.
5. The onset of each attack without any apparent cause as physical strain or indiscretion in diet.
6. Radiograph and urinalysis to exclude renal calculus.
7. The X-Rays as an indispensable factor in confirming a diagnosis in these obscure cases.

TRANSACTIONS

OF THE

Clinical Society of the University of Michigan

Stated Meeting, June 10, 1914

The President, R. BISHOP CANFIELD, M.D., in the Chair

Reported by REUBEN PETERSON, M.D., Secretary

A CRITICAL REVIEW OF FIVE HUNDRED PUBLISHED AND UNPUBLISHED CASES OF ABDOMINAL CESAREAN SECTION FOR ECLAMPSIA.*

REUBEN PETERSON, M.D.

Professor of Obstetrics and Gynecology, University of Michigan.

Three years ago I published the results of an analysis of 530 published and unpublished cases of eclampsia treated by vaginal Cesarean section. Even if the conclusions of that paper have not been accepted in their entirety, at least their presentation has given rise to free discussion and in that way good has resulted. For the past three years I have been engaged in collecting published and unpublished cases of eclampsia treated by abdominal Cesarean section in order that I might be in a position to study carefully the results of this method of treating eclampsia. The work was begun with no idea of proving or disproving the value of this operative procedure in eclampsia. It was proposed to make it a study, an impartial analysis of cases where the uterus had been emptied by the suprapubic route either in the interest of the eclamptic woman or her child. This should be clearly understood at the outset for the value of the work will depend largely upon how the cases have been collected and whether they have been studied with an unbiased mind. Everyone knows how easy it is to prove or disprove anything by statistics, and because this is resorted to so frequently by violent partisans a doubt has arisen as to the value of medical statistics. This is a mistake in my opinion for an impartial scientific statistical study of any medical topic is exceedingly valuable and well-nigh indispensable in judging of the value of certain lines of treatment.

The same method was employed in the collection of the present series of cases as was used in preparing the article on vaginal Cesarean section. Letters were sent to prominent obstetricians, gynecologists and surgeons in this country and abroad stating the purpose of the research work and requesting the privilege of including in the statistics any cases of eclampsia in which abdominal Cesarean section had been performed. In addition the letter stated that the writer would consider it a favor to be referred to any one who had had occasion to treat eclampsia by this method. Through the kindness and courtesy of many correspondents I have been able to gather together for statistical purposes 500 published and unpublished cases of abdominal Cesarean section for eclampsia. When this number was reached the polls were closed, so to speak, in order that the cases could be analyzed and conclusions drawn from such analysis. Otherwise the number could have been indefinitely augmented since at the present time the operation is far more frequently performed than was the case a few years ago.

As in the former paper no case was included in the list where there was not at least one distinct eclamptic seizure. This criterion was established not to emphasize the importance of the eclamptic convulsion but for the purpose of having some standard to go by. For obviously it would have taken us too far afield to include in the list cases where the operation had been performed for the toxemia of pregnancy.

In spite of the fact that more than one-half of the cases, 276 out of 500, were performed by American operators, it is not safe to conclude that relatively abdominal Cesarean section is performed more frequently for eclampsia in this country than abroad since naturally my requests for unpublished cases were complied with more generally in this country. Germany, for instance, furnished over twice as many published cases as did America, ninety-five as against

*Read in abstract June 10, 1914 and published in full in the American Journal of Obstetrics, June, 1914.

forty-six, yet only thirty-three unpublished cases were sent me by German operators.

Of especial interest is the fact that the 500 cases of abdominal Cesarean section for eclampsia represented the work of 259 operators. In other words, the operations were performed not by a few men with large clinical material to draw from and with the skill that comes from opportunities, but by many operators from many countries. This after all is a far better index of the value of an operative procedure for a certain condition than where many operations are confined to a few men whose results perhaps the average surgeon would have difficulty in equalling. For any line of treatment in eclampsia to be of any value must be within the reach of the great body of practitioners, since they see the eclamptic first and must either carry out the treatment or call in someone to do it for them.

The maternal mortality.—Since it is generally agreed that the interests of the mother take precedence over those of her child in a case of eclampsia, it seems fitting that the maternal mortality resulting from the series should be first considered. But I have come to the conclusion that in all fairness to any operative procedure in eclampsia or for that matter any treatment of this complication of pregnancy, the mortality must be arrived at in such a manner as to show its true value. I mean by this that today we are only interested historically in the results obtained by abdominal Cesarean section for any obstetric condition when the operations were performed before the days of asepsis or before obstetricians began to realize the operation under discussion could not be performed safely if prior attempts *had* been made to deliver by the natural passages.

Obstetrics in general and obstetric surgery in particular have been slow to respond to the advances in surgical technic which have taken place during the past thirty years. It is a matter of common knowledge that the operator who is most painstaking in the aseptic technic of his abdominal and plastic work will be guilty of the greatest carelessness in his obstetric surgery. This lack of care is an undesirable inheritance from a host of obstetricians who were not trained in surgical technic, since their surgical experience was limited to this one field. While many deaths resulted from poor technic, so great was the natural resistance of the parturient woman that the mortality from sepsis did not reach alarming proportions so long as the operative procedures were from below, in other words if the peritoneal cavity were not invaded. But it was another story when this happened. Then the mortality was very high for the peritoneum, contaminated by puerperal septic organisms,

became rapidly the seat of general inflammation and death resulted from peritonitis.

Since abdominal Cesarean section involves the opening of the peritoneal cavity it is obviously unfair to include in the mortality figures, except for comparison, patients operated by this method before the days of asepsis or before obstetricians realized the contraindications to the operation from the standpoint of sepsis. If such cases are included in the statistics, the figures do not show the results of the treatment of eclampsia by abdominal Cesarean section, but the results of such operative treatment plus sepsis which places the mortality far higher than it should be.

In addition, it must be understood that a small number of cases is of little avail so far as statistics are concerned. Results obtained in the treatment of a few cases may be far different when more patients are subjected to the same treatment. For this reason among others I have waited before publishing results until conclusions could be drawn from hundreds and not dozens of cases.

For the reasons outlined above I have divided the 500 cases chronologically into two groups: first, those occurring prior to 1908 and second, those operated upon between 1908 and 1913. The latter period was selected only because it furnished the requisite number of cases from which to draw conclusions and for no other purpose.

Between 1908 and 1913 there were 283 cases of antepartum eclampsia where the uterus was emptied by abdominal Cesarean section with seventy-three deaths or a maternal mortality of 25.79 per cent. During the first period, that is, up to 1908, there were 198 cases with ninety-five deaths or a mortality of 47.97 per cent. There were twenty-nine cases of the 500 where the year of the operation was not given, therefore so as to be absolutely accurate, these cases were omitted in making up the mortality figures. For the sake of completeness and comparison and for no other reason it may be well to state that in the 500 cases there were 174 deaths or a total mortality of 34.8 per cent.

Inasmuch as the value of the statistics in this paper depends upon the arrangement of the cases in groups from the standpoint of the date at which the operations were performed, further explanation in favor of the plan adopted may be necessary. Total mortalities obtained by collecting cases where operations were performed either before the advent of asepsis or where the latter was imperfectly carried out are of little value for us today. If we wished to obtain an accurate idea of the mortality of the removal of fibroids of the uterus by hysterectomy, either supravaginal or complete, we would not think of collecting operations from the literature appearing during the time gynecologists were try-

ing out different forms of operative technic. Statistics based upon such cases would be quite valueless, so far as our present day viewpoint is concerned. Of what value would be a statistical study of the mortality incident to the operation for appendicitis based upon a series of operations some of them performed in the days when we operated only as a last resort, or waited until an abscess had formed about the appendix?

It is absolutely necessary to study the results of operations by the group methods, if great changes in operative technic have arisen during the period in which the cases in the entire series have occurred. Yet this seems to have been lost sight of in the statistical study of abdominal Cesarean section for eclampsia.

Routh has recognized the necessity of grouping chronologically cases of abdominal Cesarean section performed for different obstetric conditions. He collected 1282 cases of this operation performed by obstetricians and gynecologists of the United Kingdom who were living June 1, 1910. He was able to collect in all 1058 cases of abdominal Cesarean section for contracted pelvis with a mortality of 9.7 per cent. Up to 1891 there were 26 cases with a mortality of 30.7 per cent. while from 1906 to 1910 (uncompleted five years) there were 602 cases with a mortality of 6.1 per cent. Thus if the cases had not been grouped, the mortality for abdominal Cesarean section for contracted pelvis would have stood at 9.7 per cent., while with present day methods it is 3.5 per cent. lower. It also follows the greater the number of cases in the earlier periods, the higher the total resultant mortality will be, hence the greater the error.

So far as I have been able to observe all mortality statistics of abdominal Cesarean section for eclampsia have almost without exception been made without regard to when the operations were performed, hence are valueless so far as furnishing us with a correct valuation of the operation as it stands today. Routh is no exception to the rule, for, while recognizing the necessity for the grouping system as regards his own statistics, he quotes Kettlitz as having collected twenty-eight cases with fourteen deaths, Hillman forty cases with twenty-one deaths, Streckeisen twenty-six cases with eight deaths. The total mortality of the operation in eclampsia in 105 cases was 47.6 per cent. By his own reasoning this mortality must be too high, how much too high could only be ascertained by grouping the cases he quotes.

"Moran collected 116 cases of abdominal Cesarean section from the literature with a maternal mortality of 48.9 per cent. He tries to rectify this unquestionably excessive mortality by grouping 53 cases occurring from 1901 to 1911 with a maternal mortality of 32.32 per cent. But he failed to realize what I have already

pointed out that obstetric surgery and especially abdominal Cesarean section have not advanced as rapidly as have other departments of surgery. Only within the past five years has it begun to dawn upon the mind of the obstetric surgeon in general that we can not remove the child by the suprapubic route without a high maternal mortality if attempts have been made to deliver from below or even if many vaginal examinations have been made."

I have been rather insistent upon explaining the necessity of the group method of making up mortality statistics since totally erroneous figures are quoted by those who oppose the operative treatment of ante-partum eclampsia. Zinke, for instance, quotes Moran's 32.32 per cent. mortality and says "if this is advancement, the writer fails to see it." The same writer quotes Routh as reporting seven cases of Cesarean section for eclampsia with four deaths or a mortality of 57 per cent. and then adds "Think of it." The great trouble is the lack of thinking going on all the time in regard to mortality statistics. Zinke might just as well have picked out a single case report where death followed the operation and asked us to think of a 100 per cent. mortality. What has the mortality resulting from seven cases to do with any question? When will we learn that statistics made up from less than one hundred cases of any condition must be quoted with reservations?

Dr. Zinke is impressed with the importance of the results of his last thirty cases of eclampsia treated medicinally with a maternal mortality of 13.3 per cent. Such results are to be commended because so many mothers out of the thirty lived but the series is rather small to be of any great importance in determining the value of any kind of treatment. His next thirty cases may show very different results. A small number of cases can be used to prove almost anything. By using this method Zinke's claim to the superiority of medicinal over operative treatment of eclampsia could be overthrown at once by statistics furnished by one operator in my own series. This operator had fourteen abdominal Cesarean sections for eclampsia with one death or a maternal mortality of 7.14 per cent. Still one would hardly claim this to be the average mortality of eclampsia treated by abdominal Cesarean section.

In a previous article certain figures were given of the results of the five operators sending in the largest number of cases (9.5 per cent. mortality in 42 cases) and the mortality of 120 cases furnished by twenty operators having five cases or more. Since these figures were published it has been found that some of these twenty operators had been credited with cases in reality performed by others but reported by them in correspondence. The corrected list shows that during the period from 1908 to 1913

thirteen men performed five or more abdominal Cesarean sections for eclampsia. In all there were 91 cases with seventeen deaths or a maternal mortality of 18.68 per cent. This is a remarkable showing for a series numbering nearly one-fifth of the entire series of five hundred cases.

The mortality records of the different operators vary from no mortality at all up to 60 per cent., always keeping it clearly in mind that the percentages are made up from a small number of cases. I have no means of knowing the conditions of Heukel's and Mullally's patients before operation but Davis has explained the reason for the high mortality in his and Markoe's cases at the New York Lying-in Hospital by saying that their material was made up of many moribund and septic patients. As I shall show later abdominal Cesarean section for eclampsia is contraindicated under these conditions. Deducting the fifteen cases of these two operators we have seventy-six cases with ten deaths or a maternal mortality of 13.15 per cent., by a curious coincidence a fraction of a per cent. less than that quoted by Zinke for his thirty cases treated medicinally.

I am fully aware of the danger of drawing conclusions from such a small number of cases, although the number is over twice as large as that quoted by Zinke. I am also aware that there is danger in excluding cases for apparently good and sufficient reasons, hence I have been careful to explain just how and why such exclusions were made and have refrained from drawing conclusions. Still the series in whole or in part is interesting as showing the results of abdominal Cesarean section for eclampsia in the hands of men who have had experience with the operation under consideration.

While 25.79 per cent. can not be considered a low maternal mortality for the treatment of eclampsia, it is surprisingly low for abdominal Cesarean section in this complication of pregnancy. An operation carrying with it a 40 or 50 per cent. mortality would only be persisted in because of urgent necessity, never as a matter of choice. If, however, the figures stand at 25 per cent. with every prospect of being still further reduced if certain features making for a high mortality can be eliminated, abdominal Cesarean section at least must be given a respectful hearing as a treatment of certain cases of eclampsia provided operative treatment is to be employed.

Later, certain facts will be brought forward explanatory of the high mortality (25.79 per cent.) attendant upon this operation, that is, high as compared with other methods of treatment. Now I merely wish to emphasize the fact that the old mortality figures of this operation for eclampsia are incorrect.

In another article I have proved the advan-

tages of operative delivery in eclampsia over medicinal treatment and spontaneous labor. In 200 cases of eclampsia occurring between 1900 and 1912 where the patients were delivered spontaneously the maternal mortality was 18.96 per cent. while in 1496 cases treated by operative delivery during the same period the maternal mortality was only 14.8 per cent., an advantage of 4 per cent. in favor of operative delivery.

The advice of those who urge the medicinal treatment of eclampsia while the woman is undelivered is irrational as a working rule. Certainly it does not give the operative treatment of eclampsia a fair show, for its advocates say, "use every means except surgical in antepartum eclampsia and then if the fight is going against you empty the uterus." There can be only one result of such delayed operation, a high maternal and fetal mortality.

While the number of antepartum convulsions may not be an exact index of the patient's condition, in a general way they do furnish this information. The chances of an eclamptic with one convulsion are infinitely better than are those of the patient who has had twenty-five. But it is a mistake to endeavor to compile statistics from what follows a certain number of convulsions. Especially is this true if we are dealing with a small number of cases. For instance, it was a mistake in my former article to give the mortality percentages separately after from one to ten convulsions. Immediately the eye took in the fact that the table showed that the maternal mortality where the operations were performed after the first convulsion was 18.51 per cent. while in fourteen cases where the operations were performed after the ninth convulsion the mortality was only 7.14 per cent. Although this was explained in the text, the explanation counted for little.

The convulsions in relation to the maternal mortality have been considered in two large groups, first all the cases between 1908 and 1913 arranged according to whether the operations were performed after from one to five convulsions or after six or more convulsions. The second group has been worked out in a similar manner as regards the time after the convulsions the operations were performed but has also been arranged according to whether the convulsions ceased or continued after the operations.

(a) There were 213 cases in the first group. Of these there were 124 operations after from one to five convulsions with 25 deaths or a maternal mortality of 20.32 per cent. This is an exceedingly low mortality from an operative procedure which has been thought to carry with it a death rate of nearly 50 per cent. It will be noticed that the mortality is 5 per cent. lower when the operations have been performed

after a few convulsions than where there has been delay in emptying the uterus.

If to this immediate emptying of the uterus or at least its emptying shortly after the onset of the convulsions be added non-contamination of the puerperal tract from below by the avoidance of or limitation of vaginal examinations or attempts at delivery a maternal mortality is found which more nearly represents what should be accomplished by the suprapubic route. For out of the 124 operations there were sixty where no or only one or two vaginal examinations were made and where no attempts were made to deliver from below. There were only nine deaths after these sixty operations or a maternal mortality of 15 per cent. Granting this to be a small number of cases, as far as they go they indicate that in clean cases with clean surgery, performed after a few convulsions the maternal mortality compares very favorably with other forms of eclamptic treatment. Also it holds out a hope that under equally favorable circumstances the same or even better results can be obtained in a larger number of cases.

I have no argument with those who attempt to explain such figures by saying that a large proportion of such operations were probably useless and that many of the patients would have recovered without them. Such statements are as worthy of notice as would be the suggestion that probably the drugs used in the medicinal treatment of eclampsia were inert and therefore might just as well not have been administered. The point is that the patients were eclamptics as shown by the convulsions and other symptoms and that they recovered after the uterus was emptied by the suprapubic route. This does not mean that every woman with eclampsia should be subjected to the same treatment or that equally good results may not be obtained by other methods. That is another question altogether and must be considered separately. But nothing is gained by trying to explain a mortality by suggestions which do not explain and besides are foolish in the extreme.

The increase in mortality due to delay is shown by the fact that in eighty-nine eclamptics where the operations were performed after the sixth convulsion there were twenty-seven deaths or a mortality of 30.33 per cent. This is 10 per cent. higher than after quick delivery and 5 per cent. higher than the total mortality during this same period.

(b) Where there is a cessation of convulsions after the uterus has been emptied the presumption is that the patient is in better condition than where the convulsions continue, although, as we have seen, death occurs in a certain percentage of these cases. But these deaths may have occurred from delay in operating even if no convulsions follow. This is shown by the fact that in sixty cases where there was a ces-

sation of the convulsions after the operations where the latter were performed after from one to five convulsions, there were eight deaths or a maternal mortality of 13.33 per cent. In fifty-two cases under the same conditions except that the convulsions continued there were fourteen deaths or a mortality of 26.92 per cent. We are forced to the conclusion then that this double as high mortality was due to the fact that even with immediate operation after the onset of the convulsions the patients were so toxemic that death followed in spite of operative treatment.

Where the abdominal Cesarean sections were performed after more than five convulsions in thirty-eight cases there were ten deaths or a mortality of 26.31 per cent. where there were no convulsions after the operations. In forty-four cases under the same condition, except that the convulsions continued, there were sixteen deaths or a mortality of 36.36 per cent.

From 1908 to 1913 there were 248 children delivered by abdominal Cesarean section with nine deaths or a fetal mortality of 3.62 per cent. Up to 1908 there were 133 cases with sixteen deaths or a fetal mortality of 12.03 per cent. Thus it will be seen that the fetal mortality in the first period was almost four times as great as that during the five year period, from 1908 to 1913.

Just as the maternal mortality was lowest when the uterus was emptied early after the first convulsion, so the lowest fetal mortality (2.54 per cent.) occurred in the period from 1908-1913 where the operations were performed after from one to five convulsions, that is, under good technic and that before the child as well as the mother was overwhelmed by the eclamptic toxin. Faulty technic probably accounted for double this mortality up to 1908 for in both groups of cases the operations were performed equally early.

The highest fetal mortality (26.52 per cent.) was found in forty cases where the operations were performed before 1908 and after six or more convulsions. Even in the five year period the fetal mortality is high (7.89 per cent.) compared with the 2.54 per cent. mortality obtained through prompt operating and good technic.

Zinke in thirty cases of eclampsia reports a fetal mortality of 50 per cent. Lichtenstein after certain exclusions had a fetal mortality of 25 per cent. in fifty children born after the venesection and narcotic treatment. After various methods of delivery with some exclusions in 1487 cases there were 460 children died or a fetal mortality of 31.2 per cent. In the light of such figures the obstetrician is bound to consider the rights of the fetus when by a certain operation the fetal mortality can be

reduced to 2.54 per cent. with a maternal mortality in sixty cases of 15 per cent.

Vaginal examinations prior to the abdominal Cesarean sections and the maternal mortality.—

It is exceedingly difficult to obtain from published cases or from the questionnaire accurate information regarding possible contamination of the genital tract through vaginal examinations. Routh's analysis of abdominal Cesarean section cases has shown the danger of frequent examinations or attempts at delivery since the maternal mortality under these conditions is 34.3 per cent. in comparison with 2.9 per cent. where the operations have been performed when the patients were not in labor and the membranes unruptured. But it is too much to expect that any great proportion of eclamptics will be subjected to abdominal Cesarean section without first being subjected to thorough examination, nor could this be desirable. In the great majority of cases eclampsia comes suddenly without warning and without previous knowledge of the size of the bony pelvis or the soft parts. Hence at least one vaginal examination is almost always necessary.

Again, it is impossible to ascertain from a questionnaire the manner in which the vaginal examinations were made. It is perfectly possible to make a number of such examinations in accordance with an aseptic technic so perfect as to be almost without danger. On the other hand it is equally possible to infect the woman through a careless technic by one vaginal exploration.

In 188 cases during the five year period it was distinctly recorded that one or more vaginal examinations were made. There were fifty-five deaths among these patients or a maternal mortality of 29.25 per cent., distinctly higher than the total maternal mortality (25.79 per cent.) during this period. Again combining the few cases where it was distinctly stated that no vaginal examinations were made with those cases where no statement was made, ninety-five in all, we find there were eighteen deaths or a maternal mortality of 18.94 per cent.

As far as this evidence goes we are justified then in concluding that a certain proportion of the deaths during the five year period were due to prolonged or badly conducted vaginal examinations with the understanding that such examinations would have been productive of far less mortality had not the peritoneal cavity and the uterus been opened subsequently.

SUMMARY AND CONCLUSIONS.

1. Since the 500 cases of abdominal Cesarean section represent the work of 259 operators they are a very fair index of the present status of the operation as a method of treating antepartum eclampsia.

2. Since the results of operative obstetrics, es-

pecially abdominal Cesarean section are far better at the present time than formerly, the value of the operation as a method of treatment of eclampsia can only be judged by grouping the cases chronologically.

3. Between 1908 and 1913 there were 283 cases of eclampsia treated by abdominal Cesarean section with seventy-three deaths or a maternal mortality of 25.79 per cent. Up to 1908 there were 198 cases with ninety-five deaths or a mortality of 47.97 per cent. Hence the maternal mortality in the five year period has been reduced nearly one-half.

4. Hence the old figures of a 40 to 50 per cent. maternal mortality from abdominal Cesarean section for eclampsia are incorrect and should no longer be quoted.

5. The mortality percentage quoted above (25.79) probably can be considerably lowered by care in technic and by not making use of the suprapubic route where there is great probability that the woman has been infected from below.

6. Nearly one-fifth of the entire series, ninety-one operations, were performed by thirteen men having five or more cases to their credit, with seventeen deaths or a maternal mortality of 18.68 per cent.

7. Deducting fifteen cases where the proportion of moribund and septic patients was very high, the remaining seventy-six cases with ten deaths give a maternal mortality of 13.15 per cent.

8. Although an eclamptic may die after a single or survive after many convulsions, the latter must be utilized as an indication of the degree of eclamptic poisoning until we have a better method of estimating the patient's condition.

9. Emptying of the uterus either spontaneously or by artificial means while it puts a stop to the further elaboration of toxins from the fetus, the placenta or both, may not be sufficient to prevent further convulsions or in certain cases death of the mother from intoxication. In other words, so great has been the effect of the poison that convulsions continue after delivery or death ensues in spite of the relief afforded by emptying the uterus.

10. In the present series convulsions ceased after abdominal Cesarean section in 251 out of 457 cases or in 54.92 per cent. These statistics agree with those made up from thousands of cases of eclampsia showing that convulsions cease after the emptying of the uterus either spontaneously or artificially in from 52 to 62 per cent. of the cases.

11. Even where the convulsions cease after delivery a certain proportion of the patients die. In 146 cases where the convulsions ceased after abdominal Cesarean section during the five

year period (1908-1913) there were 41 deaths or a maternal mortality of 19.8 per cent.

12. While the above percentage of patients died after emptying the uterus by abdominal Cesarean section after cessation of the convulsions the mortality is much less than where the convulsions continue, since in 130 of such cases there were forty-one deaths or a maternal mortality of 31.53 per cent.

13. The operative treatment of eclampsia has never been given a fair trial. To do this the uterus should be emptied quickly, as soon as possible after the onset of the first convulsion, not emptied after all kinds of medicinal treatment have been tried and failed.

14. In the present series there were twenty-five deaths after 124 operations performed after one to five convulsions or a maternal mortality of 20.32 per cent.

15. The best results in the operative treatment of eclampsia are bound to follow immediate emptying of the uterus in cases where the woman has not been infected by frequent vaginal examinations or attempts at delivery from below. This is shown by the following:

16. In sixty of the 124 cases where the operations were performed after from one to five convulsions, where no or only one or two vaginal examinations had been made and where no attempts were made to deliver from below there were only nine deaths or a maternal mortality of 15 per cent.

17. The increase in mortality due to delay is shown by a mortality of 30.33 per cent. where the operations were performed after the sixth convulsion. This is 10 per cent. higher than after quick delivery and 5 per cent higher than the total mortality resulting during this same period (1908-1913).

18. In sixty cases where the convulsions ceased after operations performed after from one to five convulsions there were eight deaths or a maternal mortality of 13.33 per cent. The mortality is twice as high (26.92 per cent.) after operations performed under the same conditions except that the convulsions continued.

19. Where the abdominal Cesarean sections were performed after more than five convulsions there was a resulting mortality of 26.31 per cent., where there was cessation of the convulsions, and 36.36 per cent. where they continued.

20. The average number of convulsions in 386 cases of eclampsia in the abdominal Cesarean series was nine where the cases were not grouped. The average was ten up to 1908 and eight from 1908-1913.

21. Twins occurred twenty-one times in 500 cases of abdominal Cesarean for eclampsia or in 4.02 per cent. of the cases. This is over three times as frequent as are twins in normal cases.

22. Excluding premature children and

counting all children as living who survived one hour after delivery there were nine deaths from 1908-1913 where 248 children were delivered by abdominal Cesarean section or a fetal mortality of 3.62 per cent. Under the same conditions the fetal mortality was 10.69 per cent., if children dying the first three days after delivery were counted among the deaths. Even estimating the fetal mortality by this method it is much better than by any other method of treating eclampsia.

23. The fetus as well as the mother is affected by the eclamptic poison. The greater the number of eclamptic convulsions before delivery the greater the fetal mortality. Hence for the sake of the fetus the uterus should be emptied as soon as possible after the first convulsion. If other factors in the case call for abdominal Cesarean section the chances of the fetus will be much better than if another method be employed.

24. In 474 cases of eclampsia in the present series, 83.75 per cent. were primiparae and 16.17 per cent. multiparae. The relatively larger proportion of primiparae was due to the fact that primiparous conditions, such as undilated and rigid cervix and rigidity of the soft parts more often called for the abdominal operation than for other methods of delivery.

25. The maternal mortality is higher after abdominal Cesarean section in multiparous women than is the case with primiparous eclamptics. In the present series in 225 primiparae the maternal mortality was 24.44 per cent. while in forty-eight multiparae the mortality was 27.08 per cent.

26. The fetal as well as the maternal mortality is higher in multiparae after abdominal Cesarean section. This is probably due to the greater degree of intoxication among the multiparae since, in both primiparae and multiparae, the children, because of the nature of the operation employed, escape the traumatism of labor. The greater intoxication among the multiparae is probably due to their being on the average older than the primiparae, the average age of the former in seventy-seven cases being 32.6 years while the average age of the latter in 397 cases was 24.6 years.

27. The maternal mortality in eclampsia after abdominal Cesarean section steadily increases with the age of the patients, it being 23.63 per cent. between the ages of sixteen and twenty and 31.11 per cent. between the ages of thirty-one and thirty-five.

28. The number of eclamptic cases in the present series steadily increased from the fifth month of gestation up to full term, also the further advanced the pregnancy, the lower the maternal mortality.

29. Unless the aseptic technic employed in attempts to deliver from below be known, ab-

dominal Cesarean section is contraindicated, so great are the dangers of fatal peritonitis when the patient is infected.

30. The high death rate of abdominal Cesarean section after operative procedures is shown by the fact that there were ten deaths in twenty-nine such cases or a maternal mortality of 34.48 per cent. This 9 per cent. increase in mortality over the total mortality (25.79 per cent.) during the same period was undoubtedly due to sepsis, shock and delay in emptying the uterus.

31. The mortality is distinctly higher after abdominal Cesarean section in eclampsia, if vaginal examinations have been made prior to the operations. The danger increases directly with the number of examinations made and the lack of asepsis employed.

32. Any obstetric condition which makes delivery by the natural passages prolonged and difficult may be an indication for abdominal Cesarean section in eclampsia. If delivery be decided upon the uterus should be emptied by the method which will perform the work the quickest and with the least trauma and shock to mother and child. However, it must be borne in mind that there is more danger of sepsis when the peritoneal cavity is opened.

33. With the present state of our knowledge of this operation for eclampsia it can not be denied that older and more tried methods of emptying the uterus in eclampsia give better results in eclamptics with normal pelvis and soft parts, hence should not be lightly discarded in favor of the more brilliant and more easily performed abdominal operation.

34. But with a maternal mortality after abdominal Cesarean section of 18.68 per cent. in 191 cases of eclampsia in one series, 13.13 per cent. in seventy-six cases in another and 15 per cent. in sixty cases where the uterus was emptied after a few convulsions, the operation under consideration has reached a stage where it can no longer be disregarded by obstetricians who have based their opposition to the procedure upon statistics which were altogether too high.

DISCUSSION.

DR. HARRY B. SCHMIDT: I would like to ask Dr. Peterson if he has ever tried to estimate the amount of nitrogen retention in these cases as a test of the severity of the eclampsia.

DR. FREDERIC M. LOOMIS: I think one of the striking lessons of this paper is that we must insist that our students do not make reckless vaginal examinations of women who are about to go into labor. I was recently told by a student from another school with a large out-patient service that it is the custom there to send two or three to a case, each one making a vaginal examination, usually without gloves. This is absolutely inexcusable. A very satisfactory examination can be made by rectum without any danger of infecting the woman, and while eclampsia is not common, I think we should place its spectre beside that of sepsis, and

so conduct every labor and every examination that we can safely open the abdomen if necessary later.

DR. CONRAD GEORG, SR: I should like to ask about how many cases Dr. Peterson has seen of eclampsia after the uterus has been emptied. I want to know what mortality he has seen in this variety of eclampsia.

DR. REUBEN PETERSON: I would say in reply to Dr. Schmidt's question that up to the present time I don't think any satisfactory method has been worked out to determine the exact condition of the eclamptic. Of course there have been various attempts to do so but as far as I can see, these tests haven't been very satisfactory and we aren't very much better off today than formerly. I don't think that the test you speak of has been used very extensively. In answer to Dr. Georg's question, I may say that I have seen quite a good many cases of postpartum eclampsia. The mortality in these cases is from 10 to 15 per cent. At first sight it would seem as if that would speak against the treatment of emptying the uterus in antepartum eclampsia. The uterus is emptied and after some hours or even days the woman is taken with eclamptic convulsions. That would seem to be against the argument that the uterus should be emptied as a treatment of eclampsia, but in reality it is not. The eclamptic has convulsions prior to and after the emptying of the uterus because of the amount of intoxication present. I have had a number of such cases. One of these was that of a woman in which I had no idea that the patient was in a dangerous condition. Two hours after I left the house she was seized with a violent eclamptic convulsion in spite of the fact that the uterus had been emptied. In these cases the damage has already been done, the damage to the higher nerve centers, liver, kidneys or brain and in spite of the benefit of the emptying of the uterus. It is just the same in surgery. You have a patient with appendicitis who dies following operation. The surgeon is careful to explain that the patient died, not from but in spite of the operation—in spite of the benefit derived from the surgical procedure. So in spite of the fact that you empty the uterus, the woman is so intoxicated by prior conditions that she continues to have eclamptic seizures. She has been so overwhelmed by the toxins that in spite of the relief resulting from emptying the uterus, postpartum convulsions occur.

SUMMARY OF RESULTS FROM 600 INTRAVENOUS INJECTIONS OF NEOSALVARSAN.

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As the sum total of knowledge concerning salvarsan and neosalvarsan has increased, the methods of their administration have changed. In the last twenty months, approximately 1239 injections have been given in the Dermatologic clinic with no fatalities and only a very few untoward results. Since the last of September, 1913, 600 injections in 160 cases have been administered. At that time the concentrated method of Ravaut was introduced by Dr. Wile and has been used since to the exclusion of other procedures. By this method a hyper- or iso-tonic solution of neosalvarsan in freshly dis-

tilled sterilized water is made and immediately injected. Under aseptic precautions the contents of a nine decigram ampoule are dissolved in ten cubic centimeters of water. This is aspirated through a cotton filter into an all glass Luer syringe. A needle is substituted for the filter and the required dose immediately injected into a vein of the arm in the usual manner. This method was first introduced by Dr. Paul Ravaut of the St. Louis Hospital in Paris. It possesses decided advantages over the previous procedure in which from 120 to 300 cubic centimeters of water or salt solution were used as a solvent. By using ten cubic centimeters of freshly distilled sterilized water as a solvent, several uncertain and unreliable factors in the production of salvarsan reaction were eliminated. Wechsleman demonstrated several months ago that water, although sterilized, will produce severe reactions if allowed to stand too long previous to injection. This was thought to be caused by spores or from endotoxins from killed organisms, other observers accusing chemical impurities such as salts of lead silicates, calcium carbonate and finally the sodium chloride used to make the solution iso-tonic. As a result, distilled water was used, but this was strongly hemolytic and probably determined many of the untoward phenomena occurring after repeated injections. Ehrlich also showed the increasing toxicity of the drug resulting from oxidation upon prolonged manipulations preceding injection. These objections were practically all removed by the concentrated dose method. The whole procedure need not occupy more than three to four minutes from the opening of the ampoule to the withdrawal of the needle from the vein.

In this clinic the number of injections and dosage of each has been largely determined by careful study of the individual patient: since a large number of our patients are in the secondary period and because it is advisable to state a definite time for residence in the Hospital, approximately the following plan has been followed. Four injections are usually given, the second one occurring two days after the first and the other two at five day intervals. The successive increase in dosage is as follows; for an average man .4, .6, .8, and .9 Gr. for the last. For the average woman doses of .3, .5, .7 and .8 Gr. are used. This dosage varies considerably according to the physical condition of the patient. A hospital residence of about three weeks is required for this course of treatment. In children suffering from hereditary lues the method and dosage was varied, only one injection per week being given. In a number of cases, more than four injections were given, one patient with a rupial syphilid receiving ten injections without reaction.

In practically all cases the therapeutic re-

sults were excellent and coincide with the results of other observers. Mucous membrane lesions healed most rapidly, and secondary lesions were in almost all cases entirely involuted at the time of discharge. The most resistant lesions from a dermatologic standpoint were some of the gummata.

Practically all patients showed an increase in hemoglobin, in weight and in general health and in most cases a feeling of wellbeing succeeded the first injection. Moderately advanced secondary syphilitic anemias cleared up rapidly. Those of the primary type and some of more doubtful diagnosis did not do so well. However, even in this class, with one exception there was marked improvement following the injections.

Several cases of nephritis were treated with no untoward results, although one cannot say in view of the recent findings of Wechsleman that the treatment is not without considerable danger. One patient with a blood pressure of 212 received four injections of .2, .25, .45 and .3 Gr. with no noticeable reaction. Another patient showing advanced chronic interstitial nephritis and diabetes received two injections of .3 to .5 Gr. with no bad results.

One patient, six months pregnant, with profuse secondary lesions of the mouth and skin received four injections of .4, .6, .8, and .8 Gr. followed by mercurial treatment. As a result, she was delivered of a full term apparently healthy child who, however, showed suggestive stigmata and about thirty days later a bullous eruption on the feet and arms. This result does not corroborate the sanguine report of Jeanselme who reported healthy children after similar treatment.

A case of obstructive syphilitic laryngitis showed a rise in temperature of 100.4 degrees after his first injection of .3 Gr. and some fourteen hours later an increase in the laryngeal obstruction with great difficulty in breathing. Succeeding injections of larger amounts did not cause any reaction. This is an illustration of the so-called Herxheimer reaction.

Another rather striking reaction occurred in a patient who had an intravenous injection of salvarsan three months preceding his entrance into the Hospital. Within five days after receiving .3 Gr. of neosalvarsan he developed a seventh nerve palsy of the left side. This entirely cleared up after the subsequent injections. Inflammation of the optic, auditory and facial nerves occurred in a small number of cases after salvarsan. They also occur with no treatment and after treatment with mercury.

A case of advanced secondary optic atrophy in the tertiary period became much worse after two small injections. The patient was an advanced tabetic. A number of cases have shown marked slowing of the pulse succeeding the first

injection. In a case of late secondary lues, a patient addicted to the excessive use of tobacco showed a marked slowing of the pulse and a subnormal temperature. The slow pulse persisted for some days. Succeeding injections were well tolerated.

Another case developed a temporary slowing of the pulse and a subnormal temperature about seven hours after his seventh injection. This was associated with dizziness and stupor. The symptoms subsided after stimulating measures. No further injections were given in this case.

Classifying the more common reactions, it was found that there were twenty-four after the first injection; ten after the second; ten after the third and seven after the fourth. Of the twenty-four following the first injection nine were Herxheimer reactions which consist in the temporary exacerbation of previous lesions and symptoms. This reaction is explained either because of the liberation of endotoxins from the destroyed spirochete or by a stimulation of the spirochetes by a dose of the drug insufficient to cause their death. Six patients showed a rise in temperature above 100 degrees. Four were nauseated. Two showed a decided fall in pulse and temperature and two suffered from severe headache associated with nausea. Persistent headache in the secondary period has usually indicated cerebrospinal involvement. One patient exhibited a transient hematuria which did not occur after succeeding injections.

After the second injection there were ten reactions. Four of these showed an erythematous eruption which was taken as indicating their limit of tolerance. Three patients reacted with a temperature of from 101 to 103 degrees. Two suffered from headache and fever and one from nausea. It is apparent therefore, that after the second injection the most probable cause of reaction is that of drug intolerance.

There were ten reactions after the third and seven after the fourth injection, most of which, were examples of intolerance to the drug, as indicated by an erythematous eruption frequently associated with a febrile disturbance. After such manifestations salvarsan medication was discontinued and treatment was continued with mercury. There were two reactions with a subnormal pulse and temperature, one after the third and one after the fourth injection. The exact cause of this reaction cannot be given but it is held that in part, at least, they are due to the effect of the drug on the vagus. Two patients who had some six or eight injections complained of a tingling in the hands and feet. This gradually disappeared upon cessation of treatment.

Credit is due to Professor Wile for the inception and supervision of the mode of treatment as outlined in this paper.

Judging from the result of these six hundred

injections, it seems justifiable to draw the following conclusions.

1. The intravenous administration of neosalvarsan in selected cases is without danger.

2. Danger is minimized by the method making sure of a concentrated hypertonic solution.

3. Danger is minimized by keeping the patient under hospital supervision while undergoing treatment.

4. In the absence of a large number of spirochetes, a certain amount of reaction is inevitable after the first injection. This reaction is of no importance.

5. A reaction of sensitization is excited in a small number of cases.

6. The small number of untoward results is due to care in selecting cases, proper dosage and asepsis in administration.

7. While neosalvarsan has not proved as potent as old salvarsan, it is highly efficient and may be used more often and in larger doses.

DISCUSSION.

DR. UDO J. WILE: I think the most important lesson we have learned from the 600 or so cases treated by the concentrated method and the 800 or 900 treated by the dilute form, is not when to give salvarsan but when not to give it. There are certain definite contraindications that the reactions have shown. Defective elimination of any sort whatever constitutes a very definite contraindication. We have been very careful in these cases to give neosalvarsan only upon the responsibility of the department which transferred the case to us or to substitute mercurial treatment in these cases. The reason for this is that arsenic is not toxic for the individual whose elimination is physiologically correct. As soon as this substance is stored up in the body for any time it breaks down into metallic arsenic, the degree depending upon the slowness of the elimination of the drug.

As to the relative value of the concentrated over the dilute method of administering neosalvarsan, there can be no shadow of a doubt. A large amount of fluid—20 cubic centimeters of water for each decigram, making 120 for the maximum ampoule, invariably causes a certain amount of hemolysis and more or less anemia after repeated injections. Ravaut showed definitely that when the blood is allowed to flow back into the syringe, it can be kept in this solution for an indefinite time without laking. And again, the blood pressure is not appreciably raised by the increase of 10 cubic centimeters of fluid. But it is raised by a larger quantity. Such a rise of blood pressure is not dangerous to the average patient, but to a patient who is already a high pressure case, this increase is of great moment.

There can be no doubt in anybody's mind that the old salvarsan is much more potent than neosalvarsan. We still use the neosalvarsan because the patients are usually unable to stay in the Hospital long enough to receive the old in repeated doses. We give an average of five injections of the neosalvarsan. In my own experience I have given twenty-two injections to one patient and as high as two grams of neosalvarsan or 1.5 of old salvarsan as a terminal dose. The initial dose should invariably be small in order to test out the patient's possible idiosyncrasy. The technic which has been followed in this clinic is such as one should observe in

a capital operation—absolute asepsis and careful record of cases.

DR. WILLIAM D. LYON: In Edinburgh I saw Dr. Findlay treat many out-patient infants by this method of neosalvarsan. He was not particularly careful as to technic. Most children were kept a half hour or longer after the injection. He gave a large dose to each infant. The results so far as symptoms were concerned were exceedingly good. As to the effect on the lesions, the results were very good. Some infants seemingly in very bad condition, became very comfortable in just a few days after the first or second injection. The lesions melted away like snow.

DR. CONRAD GEORG, SR.: Has Noguchi's discovery of the spirochetes in paralysis made any change in the treatment or in mortality? And in cerebellar lues are these salvarsan treatments of any special benefit over the treatment by mercury, sufficiently guarded? And another question I want to ask. Is cerebellar ataxia without any symptoms that indicate tabes to be looked upon as cerebellar lues or progressive paralysis? In a case where there is no disturbance of sensation, peripheral or deep, no eye symptoms you can refer to tabes—nothing pointing to cerebellar ataxia?

DR. ALVIN J. LORIE: I would like to ask why records of the use of neosalvarsan show it to be more efficacious in secondary than in primary lues so far as a negative Wassermann reaction is concerned.

DR. JOHN T. HOLMES: In answer to Dr. Georg's first question I would say that in cerebrospinal lues the treatment by the intravenous injection of any drug is rather unsatisfactory. Dr. Camp determined sometime ago that none of the salvarsan was found in the spinal fluid after intravenous injections of salvarsan. Personally, it seems to me that there is not much to offer in cerebrospinal lues through salvarsan any more than in mercury properly given. Of course, the new method of treatment by salvarsanized serum and by other intradural medicaments, offers the greatest hope for this class of nervous involvement. The reports are exceedingly good it seems to me, when we consider the hopelessness of such cases previously. In reply to Dr. Georg's other question, I think it is a question of diagnosis rather than treatment. A case of that sort I should certainly refer to a neurologist. In regard to Dr. Lorie's question, I would say that I did not know that that was true. Perhaps Dr. Wile can inform you about the matter.

DR. R. BISHOP CANFIELD: I would suggest that such a patient had meningo-encephalitis, one of the most important changes that take place in the brain in syphilis. Salvarsanized serum would probably be the best thing for him.

DR. UDO J. WILE: I would say that it didn't belong to the tabetic class of patients nor to progressive paralysis. I would like to differ with Dr. Holmes that the treatment of cerebrospinal syphilis lies in the introduction of salvarsanized serum into the cerebrospinal canal. Spinal cases, including the brain in cases of cerebrospinal syphilis hold out hope for amelioration only in so far as the active spirochetes can be killed off. They can be much better killed off by dilute injections of neosalvarsan intradurally than by salvarsanized serum. I should say that the future treatment of cerebrospinal syphilis lies in the introduction of a drug allied to salvarsan, which shall be parasitropic and at the same time not neurotropic. The present objection to salvarsan used intradurally is that it is actively neurotropic.

DR. CONRAD GEORG, JR.: I should like to ask about the patients in Los Angeles who died from the effects of salvarsan injections.

DR. UDO J. WILE: That was due to the fact that the drug had been allowed to stand. The patients died from acute encephalitis. Progress is being made in the treatment of progressive paralysis. An attempt is being made to treat these patients intradurally. We have started treatment of cerebrospinal syphilis by intradural injections of very dilute neosalvarsan. I have just reported a series of twenty-five injections in fifteen cases in some of which we have had gratifying results and in some not so gratifying.

A CASE OF OTITIC STREPTOCOCCIC BACTEREMIA.

R. BISHOP CANFIELD, M.D.

(From the Clinic of Otolaryngology, University Hospital, Ann Arbor, Michigan).

I wish to put on record the following case of otitic streptococcic bacteremia: The patient is Marjorie J. aged 9 years, who entered the University Hospital May 4th, 1914, with the following history: Two weeks ago she contracted measles. A few days later it was noticed that the right ear was discharging although the child had not complained of pain in that ear. The discharge was at first a bloody serum but soon became purulent and has persisted until the present time. Three days after the discharge appeared the child had a severe chill lasting about ten minutes. About this time her temperature was found to be 105 degrees. Since the first chill four others have followed but none has been so severe as the first one. She has complained of frontal headache and has vomited several times.

Examination.—The child is lying on her left side in the active position. The thighs are flexed somewhat upon the abdomen and the legs are flexed upon the thighs. The left arm is held quietly but the right arm is moved freely. The face is pale and the expression is anxious. She replies to questions intelligently but is irritable and peevish. The chest and abdomen are negative. There is moderate desquamation on the flexor surfaces. There is no König or Babinski and the deep reflexes are prompt and equal. The left elbow is warmer than the right but swelling is not noted. She complains bitterly upon movement of the left elbow. The eyes are negative. The left ear is negative. The right ear shows the tympanic membrane red and bulging. There is a perforation in the posterior half through which pus appears. The posterosuperior canal wall droops in the depths of the canal. The mastoid is tender over the tip and the posterior surface of the bone. The blood showed reds 4,720,000, whites 9,900 with 74 per cent. polys.

A diagnosis of acute mastoiditis with sep-

ticemia was made and in view of the character of the discharge from the ear and of the clinical course as learned from the history the infecting organism was thought to be streptococcus pyogenes.

May 5th a complete mastoid operation was performed. The mastoid process was found to be diploetic in character and was filled with pus and plastic lymph. The character of the mastoid and the appearance of the sigmoid sinus when uncovered substantiated our opinion that this was a case of sepsis without thrombosis. The sinus was opened and this condition found to exist.

On the day following the operation, the blood culture which had been taken on the day before the operation showed a distinct growth of streptococcus pyogenes. There was no improvement in the patient's general condition. She was colorless, listless and apparently oblivious to her surroundings. The temperature rose to 104 deg. at 8 p. m. and the body became covered by a dull red rash suggestive of sepsis. Thirty cubic centimeters of human blood serum were given subcutaneously. From then on blood serum was administered intravenously, the attempt being made to give at least fifty cubic centimeters. Through errors in technic a part of this was lost on more than one occasion. Following each transfusion there seemed to be some improvement in the general condition. The temperature on the other hand retained its septicopyemic type. It is interesting to note that the leucocytes which numbered 9,900 on the day of entrance rose after the operation to 14,000-18,000 and remained up. It was apparent that the source of infection of the blood stream had not been satisfactorily dealt with, although daily inspection of the sinus showed nothing pathologic. On the eighth day after the operation, however, a drop of pus was seen coming up from the neighborhood of the jugular bulb. On this account the jugular vein was resected, the lower end of the upper portion being sutured to the skin. A blood culture was taken from the portion excised (later shown to be negative). From this point the child began an uneventful recovery.

This case is put on record as one in which a streptococcic bacteremia was clearly demonstrated and in which the intravenous injection of human blood serum was employed with apparently some improvement in the patient's general condition. This improvement was no doubt an incident in the course of her disease rather than a direct result of the use of the serum.

DISCUSSION.

DR. UDO J. WILE: I should like to ask whether in the absence of signs or symptoms pointing to endocarditis, there might not still be a valvular condition present?

DR. HARRY B. SCHMIDT: I took the first blood cultures on this little girl, and both tubes were positive in forty-eight hours showing a long-chained streptococcus. Two days later I took a culture which proved negative. After the second operation a culture from the jugular bulb was negative. She had symptoms which were typical of septicemic foci in the joints, i. e., they were nonsuppurative. I examined this patient's heart a few minutes ago. There is a rapid pulse rate which might be due to septicemia but in my opinion is due to excitement. Otherwise the heart is absolutely negative. I remember when first seeing this patient, I gave her a bad prognosis. I can see that in this case the organism was probably in the jugular bulb and may have entered the blood stream as it does in endocarditis. The organisms are localized on the heart valve, and they enter the blood stream in bunches. When the patient's temperature is normal, one usually finds the blood cultures negative, but during a rise of temperature you will find that the cultures are usually positive.

DR. UDO J. WILE: Does Dr. Schmidt think that in the absence of all clinical signs one could rule out an endocarditis in this case?

DR. HARRY B. SCHMIDT: No you can't. The lesions are intramural; they are either underneath the valves or on the chordae tendinae, frequently on the auricular valves.

DR. UDO J. WILE: I should like to call attention to the high pulse rate that accompanies the onset of this febrile period; this following a period of normal pulse rate and temperature, suggests I think somewhat the onset of an endocarditis.

DR. ALVIN J. LORIE: I have been taking care of this little girl. The neck and mastoid wounds contain a considerable quantity of sloughing material. I have been curetting and painting these wounds with iodine. The patient is extremely nervous. After the dressing, I find that the pulse rate and the temperature rise but drop after she has quieted down.

DR. R. BISHOP CANFIELD (closing the discussion): I think it is very easy to explain why a patient infected with streptococcic septicemia gets well after the proper surgical measures have been taken. If a thrombosis develops, the sinus becomes full of purulent material. When this clot begins to disintegrate, the patient develops a rise of temperature and chill, and positive blood cultures can be made. If below this thrombus the vein is ligated, the superior sigmoid and petrosal sinuses ablated or removed, you have removed the source of infection from the blood stream, that is, you have removed that portion of the circulatory apparatus infected with the ex-

ception of the portion of the jugular vein extending from the bulb to the point of ligation. If we sew this end of the jugular vein to the skin with catgut, leaving the end open for irrigation of the remaining infected portion, we have removed absolutely the source of infection. All the patient has to do is to overcome the infection remaining in the blood stream. When the original source of the disease has been removed, the patient usually gets well.

In regard to this temperature being characteristic of endocarditis, I think it is characteristic of the streptococcus pyogenes infection; whether the infection is on the heart valve or in the ear makes no difference. A temperature like that is almost pathognomic of the above mentioned infection. If the patient develops a running ear with mastoid disease and throughout the entire course of the

disease has no temperature, we are almost certain that it is streptococcus mucosus infection. This is quite characteristic of the streptococcus mucosus whether it is in the heart valve or in the ear.

In regard to Dr. Schmidt's statement about non-suppurative foci being characteristic, in my experience they are no more so than are the suppurative ones, because I have seen plenty of them where abscesses would form in the various parts of the body. Some of these cases at autopsy show multiple abscesses in the spleen, liver and other portions of the body. As a matter of fact, however, these cases in which metastases develop have a rather favorable prognosis because they show some tendency toward localization. If the metastases are in the lung, they don't do much damage. In the heart or brain, of course they are more serious.

Miscellany

Scopolamin-Morphin Anesthesia.—McClure's Magazine for June contains a sensational account of the use of scopolamin-morphin in anesthesia as used by Krönig and Gauss at Freiburg. In America the scopolamin-morphin anesthesia has received little attention. It is far from safe and can be carried out only in hospitals. Morphin and scopolamin should not be used in fixed proportions (*Jour. A.M.A.*, June 6, 1914, p. 1815 and 1829).

Cystogen.—At a meeting of physicians recently, the question was asked: Why is Cystogen, which is just plain hexamethylenamin, not recognized by the Council on Pharmacy and Chemistry? The answer is simple: Because the therapeutically suggestive title as well as the method of exploitation encourage its indiscriminate and ill-advised use, both by the medical profession and the public (*Jour. Mo. State Med. Assn.*, June 1914, p. 473).

Beef, Wine and Coca.—This preparation, sold by Sutliff, Case and Co., Peoria, Ill. was claimed to contain about 15 per cent. alcohol and one-fifth of a grain of cocain to the fluidounce. It was found to contain 23.75 per cent. of alcohol by the federal authorities and accordingly declared misbranded by the courts (*Jour. A.M.A.*, June 20, 1914, p. 1981).

Hicoura Mineral Water.—This was declared misbranded because it was not a natural mineral water as claimed (*Jour. A.M.A.*, June 30, 1914, p. 1981).

Raymond's Pectoral Plasters.—These are exploited untruthfully as "positive cures" for whooping cough, bronchitis, etc. (*Jour. A.M.A.*, June 20, 1914, p. 1982).

Prophylaxis of Tetanus.—The following procedure is advised: Remove every particle of foreign matter from the wound. Dry the wound and treat every part with iodine or cauterize it with a 25 per cent. phenol solution and apply a wet pack saturated with boric acid solution or alcohol. Inject as soon as possible, intravenously or subcutaneously, 1,500 units of antitetanic serum and repeat the injections if indications of possible tetanus arise. In no case close the wound, but allow it to heal by granulation (*Jour. A.M.A.*, June 20, 1914, p. 1964 and 1971).

Manadnock Lithia Water.—While extravagant curative claims were made for this "lithia water" examination showed it to contain only traces of lithia and hence it was declared misbranded under the Food and Drugs Act (*Jour. A.M.A.*, June 30, 1914, p. 1981).

Buckhorn Lithia Water.—This water was declared misbranded by the federal authorities because false curative claims were made for it and because it did not contain enough lithia to be entitled to its name (*Jour. A.M.A.*, June 20, 1914, p. 1981).

Sun-Ray Sparking Water.—While represented to be "the world's purest water," it was water to which sodium chloride, sodium bicarbonate and carbon dioxid had been added. Accordingly the company which sold the water was found guilty of misbranding under the Food and Drugs Act (*Jour. A.M.A.*, June 20, 1914, p. 1981).

Liquid Albolene.—This is a light variety of liquid petrolatum marketed as a proprietary medicine, exploited in an objectionable manner and with more or less misleading claims. It is said to come from Russia and differs from American products in being entirely non-fluorescent—an immaterial difference (*Jour. A.M.A.*, June 27, 1914, p. 2048).

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AUGUST

Editorials

EUGENICS.

The subject of eugenics is one in which I am much interested and the more I study the facts relative to individuals' heredity the more surprised I am that we have not done more along the line of human beings in reference to this subject than we have. We have applied the science of breeding to everything else, breeding of all kinds of stock and plants, but the human family seems to have been sadly neglected.

The word eugenics is made up of parts of two Greek words. *Eu* meaning well, strong, favorably, nobly, healthy, full of vitality; *gendo* meaning beginning, started, created or born. Let us say, therefore that eugenics (as Galton defines it) is the science which deals with all influences that improve the inborn qualities of a race; also with those that develop them to the utmost advantage and, we will add, has its working hypothesis in Mendel's law of heredity. In other terms eugenics is the science which treats of heredity with reference to feeble-mindedness, degeneracy, and criminal tendencies, and the proper means to check the same.

Eugenics is divided into two divisions, i. e., the first or positive which has to do with the conscious breeding of two individuals or strains to give some definite or desirable result. This is the kind of eugenics always applied to race horses. Very little has been done along this line although great advantages are prophesied for it in the future.

The second class, the class in which by far the most study has been given, is negative eugenics. This class has for its working principle the prevention of the mating of two defective strains, because we are able to prophesy, thanks to Mendelism, the results of such a union.

Negative eugenics can succeed only by the help of legal enactments. Dr. Vaughan says: "There must be laws governing and preventing the marriage of the unfit." Not only must there be laws governing the marriage question, but there should be other and more strict laws governing the immigration of defective individuals into this country. This is a broad land, the land of America, but it is far too narrow for such classes of immigrants as are now pouring into this country. Not only do we have our own eugenics to work out but we must also have the added burden of thousands of foreign born insane, feeble-minded and degenerate. That this is no small item is proven by the fact that the state of New York annually pays very nearly \$4,000,000 to care for the foreign born insane who have slipped past her immigration authorities.¹

The eugenical standpoint for man is that of the plant and animal breeder. Man is an organism—an animal—and the laws that govern the development and improvement of corn and race horses also hold true for him. If people would accept this truth and give as much care to the breeding of the human race as is given to the race horse great improvement would result.

The human babies born each year constitute the world's most valuable crop. The population of the entire globe is about one and a half billion. Probably 50,000,000 babies are born each year, and of this number two and one half million are born in the United States. Nearly a half-million infants die each year before they reach the age of one year and one half of all are dead before they reach twenty-three years. However, were one and a quarter million babies born to grow up and make effective men and women we could look calmly on the result, but of this number 40,000 will be ineffective through sickness, 4,000 to 5,000 will be confined in institutions. Unknown others will be incompetent through mental deficiency. It is probable that only a very small percentage will ever reach mature life and aid in the development and improvement of the human race.

I have frequently heard the argument that the loss of children in early life was but an example of the survival of the fittest, but this is not true for if so we would have a better quality. It is a disgrace to the American

1. Fully one-half of inmates of asylums are of foreign birth or descent.

citizen that we have to support half a million of insane, feeble-minded, epileptic, blind and deaf, 80,000 prisoners, and 100,000 paupers, and at a cost of over \$100,000,000 every year. One dollar for every man woman and child in the U. S. How then does this agree with the "Survival of the fittest?" And not only is this true but insanity, crime, feeble-mindedness, and pauperism are constantly increasing at about double the rate of the normal individual. It is estimated by good authority that, if no change in mating and fecundity occur, the number of epileptics and feeble-minded in the state of New Jersey will be relatively double what it is now in 1940. Will our normal population be doubled by this date? If this is true of epilepsy and feeble-mindedness will it not be safe to conclude that insanity, crime, and pauperism are also on the increase? And if this is true in New Jersey is it not true of her sister states?

This line of defective mentality is transmitted along definite lines well established and it is comparatively easy, with the knowledge of past ancestors, to predict the future posterity. Thus two feeble-minded persons of feeble-minded ancestry will produce 100 per cent. feeble-minded offspring. A normal man whose parents, either mother or father or both, are defective and who unites with a woman of like ancestors will produce from 75 per cent. to 100 per cent. feeble-minded children. It has been definitely settled that the offspring receives one-half their traits from their parents, one-fourth from their grand parents, and one-fourth from previous ancestors.

Less study, from the eugenical standpoint, has been given to the inheritance of criminality and sexual perversions than to any other class. They are found, however, to be inextricably bound up with feeble-mindedness. In examination of 100 cases from a juvenile court in New Jersey, the ninety-seventh child was found to be normal and the only one in the hundred. Sixty-seven were distinctly feeble-minded. So it would seem that these are the people that are going to make our criminals. It seems that feeble-mindedness is the center about which many other conditions are centered. Further, it is the one with which physicians, as a rule, are most familiar. For these reasons I will devote the most of the discussion to this subject.

The feeble-minded individuals may be grouped into three general classes. First, the idiot who has the mental development of a child of a few months. Is not able to clothe or feed itself. May or may not be able to talk. Always a constant care all its life.

Second, the imbecile an individual whose mental attainments never surpass those of a child of three to five years of age.

Third, the moron. In this class may be placed all individuals between the imbecile and the

normal person. From the standpoint of the eugenist, this moron class is by far the most important for consideration. The lowest form of moron may approach the imbecile very closely and the highest type of moron may be very nearly to normal standard. It is this class that is affiliating with our sons and daughters and breeding others of their kind.

The first law of inheritance of defective mentality is that "Two mentally defective parents will produce only mentally defective offspring."

The second law is that "Excepting mongolians, no imbecile is born except of parents who, if not defective, themselves, both carry mental defect in their germ plasma. Knowing that two feeble-minded persons will produce only feeble-minded offspring should not the marriage of such persons be prohibited? The idiot and the imbecile, by virtue of their condition, are limited in production. It is the moron or nearly normal that marries your daughter or my son and proceeds to lower his or her standard.

The question naturally arises as to how we may detect the moron from the normal. Border line cases are difficult to do so but by the aid of the Binet-Simon measuring tests we are able to judge very closely and to classify the person as a low or high grade moron or a normal individual. The test depends on the ability of a normal child to answer certain questions and by finding out just what questions the child can answer we are able to classify him as a normal or below normal and hence feeble-minded. Three years retardation excludes him from the normal classification and puts him in the feeble-minded class.

The results of these tests have shown us that at least two per cent. of the children of our public schools are mentally defective and incapable of taking their proper place in school work. Applying this ratio to the children of New York City we would find that there are 15,000 feeble-minded children in the public school and these figures have been otherwise verified by careful observation. Applying the same ratio to the schools of Gratiot and assuming that there are 6,000 pupils, would give us 120 mentally defective children growing up and with every probability of producing others of their kind and at double the rate of the normal individual. Gratiot county is not an exception and it is altogether probable that in some counties the ratio is still higher. In one Lapeer county family alone there is one patient in the home for feeble-minded, and twenty-four feeble-minded members of the family at large. The one patient's maintenance has cost \$1,200, while only a part of the cost to the county and to the state, of the rest of her family has exceeded \$12,500. This is exclusively of the cost of maintaining the courts, jails and penal institutions which are filled and being

filled by members of her strain, to say nothing of the price society is paying for the twenty-two prostitutes who are her kin. Three generations of her relatives were in the county house and all feeble-minded.

There has never been any careful survey made in Michigan but the number of feeble-minded people in our community is far greater than most physicians, without investigating, would credit. Every physician can look over his territory and find numerous examples of individuals that are not as mentally active as the average individual. If the Binet-Simon test were applied many of them would, undoubtedly, be placed far lower in the scale of intelligence than is supposed. Just as an illustration, I know of one family in Lafayette township in which the mother is feeble-minded, and of two daughters and one son none are bright. The son, if given one dollar in change, is unable to count it. He is married to a woman who was at one time a member of an insane asylum. They have four or five children but are not known to me. Of the two daughters one is married to a normal man and has a family, but they are also unknown to me. The other daughter is married to a normal man and has two sons. One is feeble-minded and the other an imbecile. It is probable that every physician present can recall just such histories.

Now I think we are all prepared to admit that we have the presence of feeble-mindedness, insanity, crime and pauperism in our midst and the next question for consideration is as to what to do with them. How to prevent their reproduction and increase. In other words, what rules of negative eugenics would it be policy to adopt?

In eight states there are laws preventing the marriage of defectives but an examination of epileptic hospitals show these laws to be ineffective. So it is demonstrated that laws do not control this condition for these individuals as a rule are law breakers. Education does no good to them for they are incapable of training.

There are two general methods that if carried out carefully, either will prove a great help in negative eugenics. These two are sterilization and segregation.

Sterilization is now legalized, under certain restrictions, in eight of our states. It may be accomplished in one or two ways. Castration or oophorectomy which removes the reproductive glands and destroys sexual desire. The other is vasectomy or salpingectomy and does not lessen sexual desire. None of these will cure the feeble-minded but it will prevent their reproduction.

There is no question that if every feeble-minded, insane, epileptic or criminalistic person was sterilized this year there would be an enormous reduction of the population of our in-

stitutions twenty-five or thirty years hence. But there are some good and valid reasons against sterilization. The principal one being that we have no absolutely sure way of detecting defective germ plasma and it is only defective germ plasma that reproduces, and again the people are not educated to the necessity of doing this work for race betterment.

Of the two measures for prevention segregation is far preferable. We have the testimony of Dr. D. S. Jordan that the cretins who formerly abounded at Hosta in northern Italy were segregated in 1890 and by 1910 only a single cretin of sixty years and three demi-cretins remained in the community. If strict segregation were practiced in ten years the stream of defective children would be almost dry. By twenty years half of the temporary detention sanatoria for defectives could be closed, and by thirty years the expense of maintenance would be much less than it now is. In fifty years there would remain only an old man's and an old woman's home for such as did not care to return to their relatives.

Of course, through immigration, through trauma, and through the chance union of defective germ plasma of normal persons, a thin stream of defectives would be maintained, but the state would have control of the situation and the expense would be ever diminishing whereas it is now ever on the increase.

The only argument against segregation is the expense, but statistics have shown that many of these feeble-minded people can be made self supporting when under proper guidance. At all events we must soon make some different arrangements than we now have for the number and the cost of care is surely increasing. I believe, that when the actual conditions regarding these defectives—their numbers, the causes of their defects, their relation to delinquency, their capacity for training in orderly, happy, and innocent life, the possibility of self support under proper care and control, for a large proportion of them—are universally known; and when the social disaster which follows upon the neglect of this large class is universally appreciated to anything like its full extent it will be a short time until proper and adequate care and control defectives will be secured in every state in the Union.

In conclusion I wish to particularly emphasize a few things I uphold and will present for your consideration.

1st. A general survey of the population by competent men to determine our exact status with reference to the ratio of defectives to the normal individual.

2nd. Sterilization of undoubted defectives, i. e. the worst cases.

3rd. Segregation of defectives during their entire reproductive period.

4th, Stricter laws governing the immigration and marriage of individuals of undesirable traits.

E. L. STREET.

THEODORE A. MCGRAW, A.B., M.D., LL.D.

Friends and co-laborers in the medical field of Theodore A. McGraw, Sr., of Detroit, for forty-five years a member of the medical board of St. Mary's Hospital, gathered at his home on the evening of July 1st and showered him with felicitations and expressions of friendship. As a keepsake they presented him a handsome silver vase filled with American Beauty roses and also the following engraved resolutions of appreciation of Dr. McGraw's service:

Theodore A. McGraw, A.B., M.D., LL.D.

Entered the service of St. Mary's Hospital at a time when Surgery had received its stimulus from the care of injuries resulting from our civil strife in the early sixties. From that time continuously to the date of his retirement last January he was active in the surgical work of the Hospital and for many years presided as President of the Medical Board. He witnessed during these years the passing of Surgery through its many stages to its present high place as an art. Indeed, for more than forty years he was the chief exponent of its progress throughout this part of the country.

Inseparately associated with his task as the foremost Surgeon of the Hospital was his work as a Teacher. In 1869 he founded with others the Detroit Medical College, was its President for a number of years, and succeeded to the Presidency of the new Faculty when the same became incorporated as the Detroit College of Medicine in 1885. The material from which he taught was gathered from the wards of St. Mary's Hospital, and the Amphitheatre of the Hospital was for years the scene of his activities.

His reputation is international. His ability was early recognized by the American Surgical Association of which body he has been a member for thirty-two years. His state formally commended him for his activities and recognized his ability when she conferred upon him in 1906 through the Regents of the University of Michigan the degree of Doctor of Laws.

Not only for his service to the Hospital and because he has stood before the scientific world as the highest type of the Surgeon and the Teacher, but mainly because of his strong personal characteristics, his tact, his great executive ability, his endearing qualities of mind and heart, do we, the members of the Medical Board of St. Mary's Hospital, in loving remembrance offer him this vase to hold the flowers he so dearly loves; and subscribe ourselves hereto.

Frederick W. Robbins
Wm. M. Donald
Andrew P. Biddle
Committee.

Stanley G. Miner,
President of the Medical Board
Walter J. Wilson, Jr.,
Secretary of the Medical Board.

(Signatures of forty other members of the Medical Board).

Dr. McGraw was born in Detroit, in 1839, graduated from the College of Physicians and Surgeons, New York, in 1863. He immediately enlisted in the civil war during which he was breveted captain. In 1866, Dr. McGraw began the practice of medicine in Detroit and became a visiting physician to St. Mary's hospital and in 1869, with others he founded the Detroit Medical College. He is a member of the Loyal Legion, the American Surgical Association, the American Medical Association, the Michigan State Medical Society, the Wayne County Medical Society and has held high offices in all.

Dr. McGraw is loved and held in high esteem by the entire profession of the state and his many students recall many fond memories of their student days under so worthy a member of our profession. It was most fitting that this expression of esteem and respect should be conveyed to Dr. McGraw and *The Journal* adds its felicitations to those of his associates and expresses the hope that the evening of his life may be filled with happiness and contentment and that he may enjoy the well-deserved rest to which he is so justly entitled.

AMERICAN MEDICAL ASSOCIATION— SIXTY-FIFTH ANNUAL MEETING

Atlantic City, the ideal convention city, witnessed the gathering of 4,300 physicians for the 65th annual meeting of the A.M.A. June 22-26, 1914. At the close of the meetings it was universally conceded that this had been one of the most successful meetings in the history of the organization. The weather was ideal, the section meetings were inspiringly instructive and the opportunities afforded for amusement and relaxation all served to make those who were in attendance feel amply repaid for the time invested.

House of Delegates.—The House of Delegates convened on Monday morning, June 22nd, at 9 A. M. Michigan's four delegates were in attendance at every session of this legislative body. The first day was devoted to the rendering of reports by the various councils and standing committees. These reports gave in detail the work that had been accomplished by the association during the past year; to publish them in detail would involve the consuming of too much space in this issue, so that our readers will have to be content with the more important extracts that we shall select from the various reports rendered.

Council on Public Health.—Three important recommendations were made: The first calls for a thorough investigation of public health conditions throughout the United States for the securing of accurate information on all phases

of public health and its betterment. Second. To use every available means to educate the public by every avenue possible. The sum of \$30,000 was expended for this purpose during the past year. Third. To secure the co-operation of the public in securing the enactment of public health laws.

Council on Medical Education.—Reported that in place of 160 medical schools there were now only 100. The adoption of a hospital year of study was recommended and state boards were urged to make it a requirement for license after 1918. The Detroit College of Medicine and Surgery was granted a new rating in Class A.

Affiliated Fellows.—A new kind of fellowship was created and was designated as "Affiliated Fellows." This will apply to all fellows who have been in good standing for fifteen years or more, are over sixty-years of age, and by infirmity cannot meet their annual payment of dues. They will enjoy all the privileges of fellows but will not receive *The Journal*.

Monument in the Canal Zone.—There was appropriated \$30,000 to defray the expense of erecting a monument in the Canal Zone to commemorate the labors of Dr. Walter Reed and his fellows. A special day will be observed at the Panama Exposition, next year, in honor of these men.

Revision of Section Work.—During the past few years there have been constant and increasing demands for the creation of new sections. It is now observed that some sections are carrying heavy programs and large attendance while other sections have but a light attendance and few papers. It is conceded that some of the sections may well be disbanded and again it is also imperative that the load be taken off the larger sections. To systematize the section work requires careful thought and consideration and the committee on Section and Section Work did not feel justified in making a report on how these ends be attained without giving the subject considerable thought and attention. They recommended that the President appoint a standing committee of five who shall report upon this subject at the next meeting. Dr. Vaughan appointed the following committee: Hugh Cabot, Boston; W. T. Mulligan, Pittsburgh; F. C. Warnshuis, Grand Rapids; Dr. Morgan Smith, Arkansas; Dr. F. W. McRae, Georgia.

Officers Elected.—President-elect, William L. Rodman, Philadelphia; 1st Vice-President, D. S. Fairchilds, Des Moines; 2nd Vice-President, W. R. Townsend, New York; 3rd Vice-President, Alice Hamilton, Chicago; 4th Vice-President, W. E. Darnall, Atlantic City. Secretary, Alex R. Craig, Chicago; Treasurer, W. A. Pusey, Chicago. San

Francisco was selected as the place for the 1915 meeting.

On the whole the House surrounded itself with the dignity that characterized the 1913 meeting. The effort on the part of the Illinois delegation to introduce some of its state bickerings in the House was unsuccessful and their resolution to condemn the American College of Surgeons was tabled without debate. A second resolution containing a joker and pertaining to this College was also introduced and met a like fate. It was plainly evident that Illinois had a chip on their shoulder and were eager for a contest. It was also evident that they are endeavoring to gain control of the House and to build up a political machine for the attaining of selfish ends. This movement we feel certain will not be abetted by other delegates. Illinois must first come clean to this national body before they will be able to convince the members of the House that no ulterior and selfish motives are at the bottom of their efforts.

There was considerable political activity manifested in the presidential election. The candidates were: Guthrie of Pennsylvania, Rodman of Pennsylvania and Wishard of Indiana. Guthrie had the support of the entire Pennsylvania Medical Society and its nine delegates; Wishard of Indiana had the endorsement of his state society; Rodman, also of Pennsylvania, was not possessed of the endorsement of his state organization or its delegates. He may well be designated as the "Bull Moose" candidate, supported by reason of Southern birth, by the delegates from the South. Dr. Rodman was elected on the first ballot by a plurality of one. As the President-elect of the Association he merits our united support which will be forthcoming providing he does not verify the prophesy of the insurgent delegates that they now have a president whom they can control.

General Session.—This was held in the Apollo Theater on Tuesday morning and when the meeting was called to order standing room was hard to secure. Retiring President, Dr. Witherpoon, presented to Dr. W. C. Gorgas, in the name of the Association, a gold medal in recognition of the work of Dr. Gorgas in building the Canal. Dr. Vaughan was then introduced as the President of the Association for the coming year and delivered his presidential address on "The Service of Medicine to Civilization." It was a most scholarly and able effort. In the evening some 6500 people attended the reception tendered to Dr. Vaughan.

Eighty-seven Michigan men were in attendance.

THE FORTY-NINTH ANNUAL MEETING

In this issue the reader will find considerable space devoted to the history, business and social life of Lansing and the preliminary program for our next annual meeting. We anticipate that these advance announcement will cause many of our members to plan to attend this meeting that promises to be filled with interesting events. The September issue of *The Journal* will be mailed on August 28th and will contain the complete details of arrangements as well as the entire program.

There were 385 members registered at the Flint meeting. Lansing, centrally located, with excellent railroad accommodations should cause the registration to reach the 500 mark.

Why should you attend this meeting? Last month we gave a few pertinent reasons that were advanced by men whose opinions are of value. Herewith we are adding a few more reasons:

"Personally I feel that no physician is so intelligent that he cannot learn something new at our State Meeting which does more to offset the time lost from his practice.

F. C. WITTER, Petoskey."

The times have changed since Oliver Wendell Holmes, (Who wrote such classic and such witty poems) Said—"Age lends virtues that are sure to please; Folks like their doctors mouldy like cheese." Today the doctor that is free from mould, Free from suspicion that he's getting old, Attends our meetings and joins in debate, And shows his fellows that he's up to date, He is the man no matter what his age Whom patients trust, and confreres call 'broad gauge.' Always alert, absorbing and advancing, Stealing and giving, he will be at Lansing."

J. B. G.

"What profiteth a physician to attend a meeting of the Michigan State Medical Society?"

Incidentally it enables him to see the work of others and so keep abreast of the times, for out of the work of many the kernel of truth must come.

But above all the association with other men engaged in the same line of work broadens one's view's, renders one more sympathetic with and more tolerant of the views of others; and one returns from the meeting with a greater courage and a greater determination to make one's work a success. I never return from a meeting without this feeling of encouragement, a feeling that I too may succeed as others are succeeding; and I am ready to renew the fight for better work with greater energy. It is to the mind what vacation is to the physical.

A. P. BIDDLE, Detroit.

We believe that there is no need for further argument as to why you should attend the Lansing meeting. The profession of Lansing bids you come. They are eager to make your visit pleasant as well as profitable. They await your arrival to bid you welcome. Plan now to attend.

A PERTINENT LETTER.

This letter is food for thought for every reader:

Editor of *The Journal*.

Michigan State Medical Society.

We have your letter of the 1st instant and beg to say that our letter was preparatory to curtailing some of our advertising, but you are so infernally nice about it that I guess we will have to start on some other publication. More than that, our ad this month is set up mighty well.

We really think that your allusion to the members patronizing advertisers is principally theoretical for we can see two or three of your Council who do not even patronize Michigan but send their work to Chicago.

Very truly yours,

A. E. CHARLESWORTH,
Wolverine Optical Company.

It is the same story that we have been dwelling upon in each issue—the necessity of patronizing our advertisers if we wish to maintain their business for *The Journal*. When an advertiser does not receive returns upon his investment he is bound to discontinue his ad and *The Journal* is the loser.

Our advertisers are honest and reliable business men and firms. Their commodities are of the best; their service satisfactory; their prices are equal to those of any other firm. With these requirements they certainly are entitled to the patronage of our members and there is no earthly reason why our members, if they have the interest of their society and its publication at heart, should consign their business to outside firms who are not employing our publication as an advertising medium.

You want a good, live, up-to-date, illustrated *Journal*. We are anxious to keep our publication in that class. To do so costs money. To secure the necessary funds requires advertising contracts. Business men will not invest in advertising expense in publications that do not give them reasonable returns upon the money they invest in it. Without this income we cannot maintain a high standard for our publication. Consequently it is for our members to bestow their orders upon the firms that occupy space in our advertising pages. It costs you nothing to do so; you will receive just as good if not better service than you are now getting from other firms; you will enable your Publication Committee to continue sending you an interesting publication. Will the profession grant us this support? Will you demonstrate to the advertiser that you appreciate their patronage? Will you make our word good, when we say to them "Our members patronize our Advertisers?" Are you willing to be a Booster or do you prefer to be recognized as belonging to the "Anvil Chorus?" From now on we hope that not another letter as the above will reach our desk complaining that our members are not patronizing our advertisers.

Editorial Comments

September 10 and 11 should witness your presence in Lausling in attendance upon our 49th Annual Meeting.

We extend our congratulations to the officers and faculty of the Detroit College of Medicine and Surgery upon having their college placed in the Class "A" rating of American Medical Colleges. It is an appropriate and worthy recognition of their labors and endeavors to elevate the standing of this institution. We sincerely hope that the future will record continued steady growth and merited prosperity. This institution has exerted a wholesome influence upon the profession of the entire state. Its future was never more bright. We predict that soon it will be credited with an "A+" rating.

The State Board of Registration in Medicine is becoming actively engaged in securing evidence with which to proceed against illegal practitioners and violators of the medical practice act. Already several have had their licenses revoked and now that the examinations for registration are over the work will be actively conducted throughout the entire state. To accomplish the desired ends the board needs and is entitled to the hearty support of the profession and every assistance should be rendered to its officers in securing evidence to proceed against all violators of the law. The secretary of the board requests that he be informed as to who are the flagrant violators.

He who ignores the meetings of his local and state organization is headed for the pool of stagnation as sure as fate. Such a person will soon find his practice drifting to his more progressive neighbor. He will soon be stranded upon the "Island of A-Has-Been," and the rut in which he has traveled will be too deep for him to turn out. Time is yet yours to avert such a catastrophe if you will but participate in the work of the organized profession and regularly attend its meetings.

Would that we could but firmly impress our members with the absolute necessity and importance of patronizing our advertisers. It is a duty that you owe and is vitally important to your *Journal's* existence. These advertisers are making your *Journal* possible. They in return are entitled to your patronage. We must demonstrate to them the value of our advertising pages. We cannot do so if our members will not send them their orders and tell them why they are doing so. Help us boost and give our advertisers preference when placing your orders.

The efficiency of your society, local and state, depends upon the co-operation you grant unto them. Single handed or a few individuals cannot bring about the attainment of the greatest good. Each individual member has a duty and a responsibility and it is only when they recognize this duty and assume this responsibility that then the highest efficiency and greatest good will be secured for our personal welfare. Will you not render unto your society that to which it is rightfully entitled from you?

The secretary of your county society should be in attendance at the County Secretaries' Meeting that is to be held on Wednesday, Sept. 9th, at 2:30 P. M. Is your society insisting upon his attendance? If not, it should. This meeting will be devoted to the discussion of the problems that confront a county society. It will reveal to your secretary ways and means whereby he may surmount the difficulties that confront your local organization and cause it to be of more value to you and of greater influence for good in your vicinity. In view of this we trust that you will insist upon his attendance. The preliminary program of the meeting will be found on another page.

At a regular meeting of the Marquette-Alger County Medical Society Dr. C. Frithiof Larson enunciated some potent facts concerning a medical society and its beneficent influence to its young members. We feel that they could well be emphasized by every County Secretary. There is an element of genius in every medical man but unfortunately for the individual, medicine and society this element is latent, unrecognized and undeveloped. The business of the County Secretary is to be able to recognize these elements through contact and encouragement.

Continuing Dr. Larson said: that unless one had read and thought along parallel lines the mind was able at once not to adapt itself to the new point of view. That requires much thought and study and the busy practitioner is not able to give that in so short a time. Of much more importance to him is the terse illuminative view point of a subject well known to all. This he can appreciate and find almost daily use for his practice. It is not well that a practitioner should put all this faith in the dictum of one favorite author. Even the maker of medical books are not able to fill them with original articles and are not averse to reach the required size by liberal padding. That which is best for the County Society is the iteration and re-iteration of the principles governing the treatment of common diseases. The drug treatment may be along divergent lines but the knowledge of the etiology and pathology should be secure.

It is common for many young persons on rising to speak to begin by saying that they are no

speech makers. Unfortunately the statement is too often true and we have a just cause of complaint of the public school which does not include public speaking in its curriculum. The physician whose early training enables him to think while on his feet before an audience; to present his views in concise language and elegant dictum with graceful gesticulation and earnest bearing certainly does possess a great advantage. He is the one whom his county or State Society delights to honor by placing him on influential committees and in high office; who is called to the lucrative professorship in the colleges; who is the idol of the public for the public likes to hear medical subjects discussed by brilliant medical men.

This is as it should be and the moral is plain. Apply it to the young medical man. Grant that he is all too self-conscious, that the English is not chaste and pure, perhaps not even grammatical, that is too slangy for polite society, that his motions are awkward and his bearing not convincing. What of it? Such conditions are easily and readily corrected by persistent observation, study and practice. Let him go to the meetings of his county medical society and get on his feet every time he decently can, let him say his say in the best way he can, let him learn to take the dawning of his efforts by faint praise as a species of compliment, let him carry the vicious jest with the merry grip, let him be here as always with no envy in his breast and no malice in his heart. Then he will find the County Medical Society a first aid to the delinquents in public speaking and a finishing school to its aspiring students of far greater practical benefit than a high grade special school. I take it that one great disadvantage the medical profession labors under with the large public is because there are so very few medical men who possess the knack of public speaking. Our points of view are not always presented convincingly to the public. Therefore, let the young man take eager advantage of this excellent school of training.

Deaths

Dr. A. B. McGregor of Cheboygan was killed July 15th when his auto was struck by a Michigan Central passenger train. Dr. McGregor was 42 years old and left a family. He was a member of the Cheboygan County Medical Society.

Dr. Henry Kremers of Holland, Mich., died Wednesday, July 15th, 1914 on his sixty-fourth birthday. He has been a member of the Michigan State Medical Society since the year 1904.

State News Notes

Dr. H. W. Long of Escanaba is spending four months in visiting the clinics of the continent.

Dr. J. J. Kurtz of Flint has gone to Lakeview to assist Dr. L. E. Kelsey.

Dr. M. H. Coan of Brighton and Miss Maude E. Jennings of Detroit were married on June 23rd.

Dr. E. A. Smith and Miss Frances Lohner, both of Ludington, were married on July 8th.

Dr. W. H. Price has been reappointed as health officer of Detroit for the ensuing year.

Dr. C. D. Colline of Iron Mountain has accepted the position of mine physician with the Newport Mining Co. of Ironwood.

Dr. Stephen L. Ludlum has located in Applegate, Sanilac County. Dr. Ludlum is a graduate of the U. of M., class of 1884.

Dr. R. H. Harris of Battle Creek is pursuing post graduate studies in Europe and will be absent for some six months.

Dr. Charles H. Oakman of Detroit has been elected vice-president of the American Association of Oral Surgeons.

Dr. Robert A. Alton of Westphalia and Miss Frances Cotter of Pewamo were united in marriage the latter part of June.

Dr. R. G. James of Gaines has moved to Detroit and will open an office in that city during the latter part of August.

Dr. Robert Mullen of Ironwood and Miss Gladys Campbell of Kalamazoo were united in Marriage on June 27th.

Dr. E. B. Smith of Detroit has been very ill at his home as the result of a breakdown caused by overwork.

Mrs. B. L. Harris, head of the training school for nurses in Harper Hospital has been chosen as superintendent of the Children's Free Hospital.

Dr. D. Emmett Welsh, and Drs. C. E. and Thomas M. Koon have moved their offices from the Wonderly Building to the Powers Building, Grand Rapids.

Dr. Leo C. Donnelly, who has been a staff physician at the State Hospital in Pontiac for several years has resigned to accept a position upon the staff of Harper Hospital in Detroit.

Normal S. Chamberlin, professor of art in the Detroit College of Medicine and Surgery, died of typhoid fever in Harper Hospital on July 13th. He was thirty years of age and already had attained a prominent position as a medical illustrator.

Dr. and Mrs. Robert Andrew Law announce the marriage of their sister, Sadie Barclay, to Dr. J. Earl McIntyre on Wednesday, June 27th. The Dr. and Mrs. McIntyre will be at home in Lansing after Sept. 15th.

Dr. W. L. Babcock, Dr. Albert McMichael, Dr. J. B. Kennedy and Dr. R. J. Palmer, all of Detroit, departed on July 8th, for a trip to Alaska. It is planned to make their 1200 mile journey one of pure pleasure.

Dr. W. T. Dodge of Big Rapids writes us from London announcing a pleasant ocean voyage and that he is already busy visiting the various clinics of England. He expects to return home during the latter part of September.

The following officers were elected to the Wayne County Medical Society, to assume office July 1st, 1914:

President—Don. M. Campbell, Detroit.
Vice-President—George McKean, Detroit.
Secretary—Clarence E. Simpson, Detroit.
Treasurer—Frank B. Tibbals, Detroit.

The physicians appointed to serve in the various branches of Eloise for the coming year are as follows:

Surgery, Angus McLean, William A. Seymour and J. B. Kennedy; mental and nervous, A. W. Ives, Dale M. King, C. W. Hitchcock; internal medicine, C. G. Jennings, A. McMichael, F. J. Clippert, P. Dultz; eye and ear, Don M. Campbell, Eugene Smith; X-Ray, P. M. Hickey; diseases of women, John Bell, W. Pepp; skin diseases, A. P. Biddle, H. R. Varney; nose, throat and chest, Stanley Miner, J. B. Whiet; urological, F. W. Robbins, W. A. Keane; rectal, L. J. Hirschman and J. M. McMillan.

The state board of registration in medicine through its secretary, Dr. B. D. Harrison, have opened a campaign for the collection of evidence and the prosecution of all violators of the medical practice act. The following cases have been handled during the past two weeks: Dr. W. L. Baker, convicted by a jury in Detroit on a charge of illegally prescribing habit forming drugs and sentenced to three months

imprisonment; his license will be revoked by the board; Dr. A. B. Spinney of Smyrna, arrested for improper advertising and awaiting trial at the next term of court; the cancellation of the license of Dr. Oliver of Battle Creek, convicted for dispensing cocaine; the cancellation of the license of Dr. A. Paterson of Flint by reason of his conviction for a criminal offense; Dr. A. J. DeLacey, Boyne City, arrested and awaiting trial for violating the practice act; the arrest of J. Vonk and A. W. Van Bysterveld of Grand Rapids for practicing without a license.

These are but a few against whom action has been taken and the beginning of a state wide campaign that will not be terminated until the state has been rid of quack and illegal practitioners. The profession is urged to render unto the secretary and the board all the assistance possible in their efforts to obtain convicting evidence.

PROPAGANDA FOR REFORM.

Wine of Cardui.—The Chattanooga Medicine Company claims that no more alcohol is used in Wine of Cardui than is needed to preserve it and that it cannot be used as a beverage. In view of this the terms "booze" and "tipple" cannot be applied to the preparation (*Jour. A.M.A.*, June 6, 1914, p. 1827).

Glyco-Heroin, Smith.—A report of the Council on Pharmacy and Chemistry explains that Glyco-Heroin, Smith, although containing one-sixteenth grain heroin to the teaspoonful, is exploited in a way to encourage self-drugging by the layman. The advertising matter suggests the administration of Glyco-Heroin, Smith, to children and much of it has contained the evident falsehood that this heroin mixture does not produce narcotism or habituation. The possibility of habit formation should be sufficient to induce the thoughtful physician to avoid the use of Glyco-Heroin, Smith (*Jour. A.M.A.*, June 6, 1914, p. 1826).

Buffalo Lithia Water.—The fallacy that diseases are due to uric acid and the fallacy that lithium would eliminate the uric acid has made mineral waters highly profitable—even when lithium was present only in infinitesimal amounts. One of the most widely used "lithia waters" was Buffalo Lithia Water, later called Buffalo Lithia Springs Water which has been declared misbranded by the Federal Courts because it was shown to contain less lithia than does Potomac River water and that a person would have to drink 150,000 to 225,000 gallons of the water to obtain an ordinary dose of lithia. The testimonials certifying to the high efficiency of Buffalo Lithia Water and its superiority to lithium compounds given in the past by physicians eminent in their profession, certify to the unreliability of clinical observations (*Jour. A.M.A.*, June 13, 1914, p. 1909).

PRELIMINARY PROGRAM

49th Annual Meeting Michigan State Medical Society at Lansing, Ingham County

Sept. 10-11, 1914

LANSING

Lansing, the place where the M.S.M.S. will hold its 49th Annual Meeting on Sept 10th and 11th is a town that should be a part of every Michigan resident's education. Because it is the capital of Michigan it possesses attractions such as no other city in the state can boast. Visiting doctors will find numerous sights that will greatly interest them professionally.

The legislature of 1847 astonished, incensed, and amused the state—depending upon the various attitudes of early Michigan residents—

position to its remaining at Detroit assumed many phases.

"Detroit had to contend against the jealousy of other localities. Among other objections it was urged that it was too far removed from the geographical center of the state, that its proximity to the national boundary would place the capital and the departments of the state government too near the menace of Canadian and British power.

"This last objection may now seem of little weight. The public mind was different in those days. Many people then viewed the objection as based upon sound reason.

"Perhaps the opposition to Detroit that carried greatest influence came from those who desired the capital located in the newer portion of the state,



when it selected Lansing as the place for the state capital. At that time Lansing was an unnamed wilderness on the banks of the Grand and the Cedar rivers. In his "History of Michigan" Lawton T. Hemans says:

"The state constitution had provided that the seat of government should be at Detroit, or such other place as might be prescribed by law, until the year 1847, when it should be permanently located by the legislature.

"This provision clearly indicated that the framers of the constitution did not wish to make a permanent location until the growth of population had made clear the one most to the advantage of the people. When the matter was brought before legislature, in the message of Governor Felch, the op-

so that the state might receive the benefit that would accrue from the building up of the capital city in such a quarter.

"Many towns made active competition for the prize. Detroit, Ann Arbor, Albion, Battle Creek, Byron, Charlotte, Corunna, Caledonia, De Witt, Dexter, Eaton Rapids, Flint, Grand Blanc, Ingham, Jackson, Lyons, Marshall, and Owosso, were among the number. All received votes, but finally the township of Lansing, Ingham county, where there was not even a village, was selected.

"The commissioners who made the location placed it upon Section Sixteen, which Governor Felch had wisely withdrawn from entry and sale while the matter was pending in the legislature. This one act of Governor Felch resulted in a gain to the school fund of the state of more than \$100,000.







"Before the close of December, 1847, the forest had been felled and the capitol of Michigan erected. Several years were passed before it was reached by other means than the slow moving stage coach, over highways whose slough-holes and corduroys left never-to-be-forgotten memories in the mind of the traveler.

"The new town bore the name of 'Michigan.' The name was changed to 'Lansing' at the first session of the legislature, which convened at the new capital January 1, 1848.

In changing the name, the legislature gave to the almanac jokers a new quip about the biggest surgical operation—"Lausing Michigan." Anyhow, that jovial little jest has helped advertise Lansing considerably, so Lansing residents don't mind.

From its inauspicious start in the wilds, Lansing has in less than seventy years grown into a city of 40,000 persons.

INDUSTRIES.

Only a very small percentage of those 40,000 persons are engaged in piling and repiling and compiling state documents, making and breaking state laws, running state elevators, mowing state lawns, guarding the state health, bossing state institutions, supervising state fish and state forests, or otherwise looking after the welfare of the animal, mineral, and vegetable kingdoms of Michigan. General impressions to the contrary, Lansing folks are, in the main, otherwise engaged.

Some 2,200 of them work six days a week building Reo automobiles. Several hundred more help in the manufacture of Oldsmobiles. Still others are employed in the making of automobile accessories, gas and gasoline engines, tractors, wheelbarrows, book and catalogue publications, store fixtures, drop forgings, paper, malleable castings, and so on.

It has been said that Lansing comes close to living off the automobile. It comes close to living in the automobile, too. There is one auto to every thirty persons in Ingham county, the highest number of auto owners per capita in Michigan. Commercially the town is growing by leaps and bounds. In 1901 Lansing's industries numbered seventy-four. Today it has nearly 200 industries, employing 10,000 men and women at good salaries.

TRANSPORTATION FACILITIES.

Four steam railroads—the Pere Marquette, Michigan Central, Lake Shore, and Grand Trunk—send thirty-five passenger trains in and out daily in nine directions. The Michigan United Traction Company operates three interurban lines through the town and also has about thirty-five miles of track in the city proper. A belt line railroad practically encircles Lansing, so that almost every manufacturing institution is directly connected with all railroads.

One thing that makes a favorable impression with visitors is the residence sections. The town is practically without a slum. The rows and rows of pretty homes are almost without an exception located in beautiful settings of handsome old shade trees.

Municipally Lansing will interest visitors. It has a city-owned electric plant that is said to be a marvel of electrical engineering, an automobile fire department, sixteen public schools with a new \$125,000 high school, a Carnegie library worth \$30,000, eighty miles of water mains, and seventeen miles of pavements.

The town is in a county which voted "dry" last April.

POINTS OF INTEREST.

Among the things which visiting doctors and members of their families who accompany them to Lansing next September will want to see are the state capitol, the Michigan Agricultural College, the state Industrial School for Boys, the state School for the Blind, the Ingham county tuberculosis sanitarium, and the Edward W. Sparrow hospital.

The capitol design was chosen in a contest on January 24, 1872; the winning design, entitled "Tuebor," being by Elijah E. Myers of Springfield, Illinois. The cornerstone for the building was laid October 12, 1873. The building was dedicated and occupied on January, 1879. It is built of New Hampshire granite, is 420 feet long, 274 feet wide, 267 feet high, and is located on a great expanse of green lawn in the heart of Lansing.

Michigan Agricultural College is in East Lansing, three miles from the capitol, on a street car line. Its sixty buildings are set in a wonderfully beautiful tract of 684 acres. Nearly 2,000 men and women students are enrolled, while the faculty numbers 130.

The state School for the Blind is part of the state public school system. It has a complete twelve grade course. It has three departments; literary, music, and industrial. All the teachers are college trained, so that courses of study are equal to any twelve grade course in Michigan and are planned to meet college requirements. The musical course covers eight years and includes vocal and instrumental. The industrial courses include domestic science, sewing, knitting and crocheting, raffia and bead work, hammock and net making, piano tuning, repairing and construction, broom and brush making, rug weaving and chair caning. The students number about 150.

Eight hundred boys are inmates of the Industrial School. The instruction includes a common school education, carpentry, printing, shoe making, baking, tailoring, painting, stenography, and farming. The property consists of 290 acres, with about thirty-five buildings.

The Ingham county tuberculosis sanitarium is regarded highly. It has ten patients at the present time, and is well located about half a mile from the Lansing city limits.

The Edward W. Sparrow hospital cost \$115,000. It was given to the city by the man for



whom it was named—a man who came to Lansing a penniless boy. The hospital is a three story brick structure, designed in accordance with the latest ideas and completely equipped.

The program of the medical society meeting will be so arranged that visitors will have ample opportunity to inspect Lansing and its many interesting sights.

Preliminary Program

OFFICIAL CALL.

The Forty-Ninth Annual Meeting of the Michigan State Medical Society will be held in Lansing, Ingham County, Michigan, on Thursday and Friday, September 10th and 11th, 1914.

The House of Delegates will convene at 8 a. m. on September 10th. The Council will meet in regular session on Wednesday evening, Sept. 9th, at 8 p. m.

The Sixth Annual Meeting of the County Secretaries Association will be held on Wednesday afternoon, Sept. 9th, at 2:30 p. m.

Guy Lincoln Kiefer, President.
Frederick C. Warnshuis, Secretary.

PLACE OF MEETING.

The General Session, the House of Delegates and all Scientific Sections will meet in the Capitol Building. The exhibitions will also be located in this building. The County Secretaries

Association will meet in the Senate chambers on Wednesday afternoon, Sept. 9 at 2:30 p. m. The first session of the Council will be held in the parlors of the Downey House on Wednesday evening, Sept. 9th, at 8 p. m.

THE COUNCIL.

Chairman, William T. Dodge, Big Rapids.
Vice-Chairman, A. E. Bulson, Jackson.
Secretary-Ex-Officio, Frederick C. Warnshuis, Grand Rapids.

Meetings.

Wednesday, September 9th, at 8 p. m.
Thursday, September 10th, at 12 m.
Friday, September 11th, at 12 m.

HOUSE OF DELEGATES.

Chambers of the House of Representatives.

President, Guy Lincoln Kiefer, Detroit.
Secretary, Frederick C. Warnshuis, Grand Rapids.

By-Laws—Chapter IV, Section 1. Each component county society shall be entitled to send to the House of Delegates each year one delegate and one alternate for every fifty members, and one delegate for each major fraction thereof: but each county society holding a charter from this society, which has made its annual report as provided in the Constitution and By-Laws, shall be entitled to one delegate and one alternate.

FIRST SESSION, THURSDAY, SEPT. 10TH.

8.00 A. M. Sharp.

Order of Business:

1. Call to order by the President.
2. Roll Call.
3. Report of Committee on Credentials.
H. R. Varney, Chairman.
4. Reading of minutes of last Annual Meeting.
5. Report of the Council.
A. E. Bulson, Vice-Chairman, Jackson.
6. Report of the Committee on Legislation and Public Policy.
A. M. Hume, Owosso, Chairman.
7. Report of Committee on Public Health Education.
Walter H. Sawyer, Hillsdale, Chairman.
8. Report of Committee on Study and Prevention of Tuberculosis.
T. M. Koon, Grand Rapids, Chairman.
9. Report of the Committee to Encourage the Systematic Examination of the Eyes and Ears of School Children Throughout the State.
W. R. Parker, Detroit., Chairman.
10. Report of the Committee on Medical Education.
A. M. Barrett, Ann Arbor, Chairman.
11. Report of the Committee on Venereal Prophylaxis.
A. P. Biddle, Detroit, Chairman.
12. Report of Delegates to A.M.A.
L. J. Hirschman, Detroit.
13. Report of the Committee on Specialties.
Emil Amberg, Detroit, Chairman.
14. Report of the Committee on Fee Schedule.
C. H. Hitchcock, Detroit, Chairman.
15. Election of Committee on Nominations.
The duty of this committee is to nominate:

- (a) 1st, 2nd, 3rd and 4th Vice-Presidents.
- (b) To nominate two delegates and two alternate delegates to the American Medical Association to succeed L. J. Hirschman and C. E. Boys.

- (c) To fix the place of meeting for 1915.

By-Laws—Chapter VI, Section 2. The House of Delegates shall elect annually, at its first meeting, a Nominating Committee of five from the House of Delegates; no two of whom shall be from the same Councilor District.

- 16. Appointment of Business Committee and other working committees by the President.
- 17. Miscellaneous Business.
 - (a) Recommendations to the Council.
 - (b) Proposal of amendments to the Constitution and By-Laws.
- 18. New Business.
- 19. Adjournment to General Session.

SECOND SESSION, FRIDAY, SEPT. 11TH.

8:00 A. M. Sharp.

- 1. Roll Call.
- 2. Reading Minutes.
- 3. Report of Business Committee.
- 4. Report of Appointed Committees.
- 5. Report of Committee on Nominations.
- 6. Election of Officers.
- 7. Unfinished Business.
- 8. Miscellaneous Business.
- 9. Adjournment *sine die*.

HOUSE OF DELEGATES.—DELEGATES AND ALTERNATES TO THE FORTY-NINTH ANNUAL MEETING.

Note.—The black-face type is that of the delegate; the other that of the alternate.

ALPENA—Branch No. 46

C. M. Williams, Alpena.
E. E. McKnight, Alpena.

ANTRIM—Branch No. 65

(One delegate.)

BARRY—Branch No. 26

(One delegate.)

BAY—Branch No. 4.

(One delegate.)

BENZIE—Branch No. 59

(One delegate.)

BERRIEN—Branch No. 50

(One delegate.)

BRANCH—Branch No. 9

E. E. Hancock, Girard.
D. H. Wood, Coldwater.

CALHOUN—Branch No. 1

S. K. Church, Marshall.
Jas. T. Case, Battle Creek.

CHARLEVOIX—Branch No. 37

(One delegate.)

CHEBOYGAN—Branch No. 58

W. F. Reed, Cheboygan
S. A. St. Armour, Cheboygan.

CHIPPEWA—Branch No. 35

F. G. Fox, Pickford.
H. E. Perry, Newberry.

CLINTON—Branch No. 39

(One delegate.)

DELTA—Branch No. 38

A. S. Kitchen, Escanaba.
G. W. Moll, Foster City.

DICKINSON-IRON—Branch No. 56

(One delegate.)

EATON—Branch No. 10

H. C. Rockwell, Dimondale.
C. D. Huber, Charlotte.

EMMET—Branch No. 41

A. E. Runyan, Harbor Springs.
J. J. Reycraft, Petoskey.

GENESEE—Branch No. 24

W. G. Bird, Flint.
H. A. Stewart, Flint.
H. Cook, Flint.
H. D. Knapp, Flint.

GOGEBIC—Branch No. 52

C. E. Stevens, Ironwood.
W. J. Pinkerton, Bessemer.

GRAND TRAVERSE-LEELANAU.

Branch No. 18

(One delegate.)

GRATIOT—Branch No. 25

C. B. Gardner, Alma.
I. N. Brainerd, Alma.

HILLSDALE—Branch No. 3

(One delegate.)

HOUGHTON—Branch No. 7.

A. J. Lawbaugh, Calumet.
A. F. Fischer, Hancock.

HURON—Branch No. 47

S. B. Young, Caseville.
A. E. W. Yale, Pigeon.

INGHAM—Branch No. 40

L. W. Toles, Lansing.
B. M. Davey, Lansing.
M. L. Holm, Lansing.
J. G. Rulison, Lansing.

IONIA—Branch No. 16

J. F. Pinkham, Belding.
G. A. Stanton, Belding.

ISABELLE-CLARE—Branch No. 54

A. T. Getchell, Mt. Pleasant.
C. D. Pullen, Mt. Pleasant.

JACKSON—Branch No. 27

C. D. Munroe, Jackson.
T. E. Hackett, Jackson.

KALAMAZOO—Branch No. 64

G. F. Inch, Kalamazoo.
 C. E. Boys, Kalamazoo.
 F. E. Ponoy, South Haven.
 Malcolm Smith, Allegan.
 A. S. Youngs, Kalamazoo.
 L. A. Rogers, Galesburg.

KENT—Branch No. 49

T. M. Koon, Grand Rapids.
 J. D. Brook, Grand Rapids.
 C. C. Slemmons, Grand Rapids.

LAPEER—Branch No. 23

(One delegate.)

LENAWEE—Branch No. 51

A. W. Chase, Adrian.
 O. Whitney, Jasper.

LIVINGSTON—Branch No. 6

H. G. Huntington, Howell.
 B. H. Glenn, Fowlerville.

MACOMB—Branch No. 48

H. F. Taylor, Mt. Clemens.
 V. H. Wolfson, Mt. Clemens.
 J. M. Croman, Mt. Clemens.
 H. G. Berry, Mt. Clemens.

MANISTEE—Branch No. 19

H. D. Robinson, Manistee.
 J. A. King, Manistee.

MARQUETTE-ALGER—Branch No. 28

H. W. Sheldon, Negaunee.
 A. W. Hornbogen, Marquette.

MASON—Branch No. 17

(One delegate.)

MECOSTA—Branch No. 8

Jos. McNeece, Morley.
 H. B. Weaver, Mecosta.

MENOMINEE—Branch No. 55

T. B. Phillips, Menominee.
 Edw. Sawbridge, Stephenson.

MIDLAND—Branch No. 43

(One delegate.)

MONROE—Branch No. 15.

Wm. F. Acker, Monroe.
 P. S. Root, Monroe.

MONTCALM—Branch No. 13

A. W. Woodburne, Entrican.
 W. H. Lester, Greenville.

MUSKEGON-OCEANA—Branch No. 61

V. A. Chapman, Muskegon.
 F. B. Marshall, Muskegon.

NEWAYGO—Branch No. 50

N. De Haas, Fremont.
 Willis Geerlings, Reeman.

OAKLAND—Branch No. 5

Wm. McCarroll, Pontiac.
 R. Y. Ferguson, Pontiac.

O. M. C. O. R. O.—Branch No. 11

C. C. Curnalia, Roscommon.
 L. A. Harris, Gaylord.

ONTONAGON—Branch No. 66

(One delegate.)

OSCEOLA-LAKE—Branch No. 30

A. Holm, Leroy.
 H. L. Foster, Reed City.

OTTAWA—Branch No. 32

D. G. Cook, Holland.
 Wm. De Kleine, Grand Haven.

PRESQUE ISLE, Branch No. 63.

(One delegate.)

SAGINAW—Branch No. 14

Robt. McGregor, Saginaw.
 A. R. McKinney, Saginaw.
 W. A. DeFoe, Saginaw.
 L. B. Harris, Saginaw.

SANILAC—Branch No. 20

Geo. S. Tweedie, Sandusky.
 Jas. W. Scott, Sandusky.

SCHOOLCRAFT—Branch No. 57

S. H. Rutledge, Manistique.
 Andrew Nelson, Manistique.

SHIAWASSEE—Branch No. 33

D. H. Lamb, Owosso.
 T. B. Scott, Owosso.

ST. CLAIR—Branch No. 45

W. B. James, Port Huron.
 S. K. Smith, Port Huron.

ST. JOSEPH—Branch No. 29

J. H. Moe, Sturgis.
 D. V. Runyan, Sturgis.

TRI-COUNTY—Branch No. 62

(One delegate.)

TUSCOLA—Branch No. 44

(One delegate.)

WASHTENAW—Branch No. 42

John A. Wessinger, Ann Arbor.
 Theophil Klingman, Ann Arbor.
 Conrad George, Jr., Ann Arbor.
 Conrad George, Sr., Ann Arbor.

WAYNE—Branch No. 2

E. B. Smith, Detroit.
 J. E. King, Detroit.
 L. J. Hirschman, Detroit.
 J. W. Vaughan, Detroit.
 H. R. Varney, Detroit.
 A. W. Blain, Detroit.
 C. W. Stockwell, Detroit.
 Fred Cole, Detroit.
 W. D. Ford, Detroit.
 Guy Connor, Detroit.
 E. K. Cullen, Detroit.
 J. B. Bell, Detroit.
 John Dodds, Detroit.
 Rollin Parmeter, Detroit.
 G. P. Myers, Detroit.
 F. B. Walker, Detroit.
 P. M. Hickey, Detroit.
 E. G. Martin, Detroit.
 C. E. Simpson, Detroit.
 M. V. Meddaugh, Detroit.
 F. B. Tibbals, Detroit.
 C. H. Oakman, Detroit.
 J. Van Amberg Brown, Detroit.
 R. L. Clark, Secretary, Detroit.

GENERAL MEETING.

House of Representative Chambers.
 Thursday, September 10th,

10:00 A. M.

President, Guy Lincoln Kiefer, Detroit.

Secretary, Frederick C. Warnshuis, Grand Rapids.

1. Call to order by President.
2. Invocation.
3. Address of Welcome.
4. Address of Welcome by Samuel Osborn,
President Ingham County Society.
5. Response on behalf of the Society by President,
Guy L. Kiefer.
6. Report of Committee on Arrangements.
E. W. Toles, Lansing.
7. Report of House of Delegates.
F. C. Warnshuis.
8. Annual Address of the President.
Guy Lincoln Kiefer.
9. Address by invited guests:
Dr. M. P. Ravenel, Madison, Wis.
Dr. Cressy L. Wilbur, Chief Vital Statistician,
New York Board of Health.
Dr. Victor C. Vaughan, Sr., Ann Arbor.
Hon. Judge Alfred Murphy, Detroit.
Rabbi Leo M. Franklin, Detroit.
Dr. Walter H. Sawyer, Hillsdale.
10. The Origin and Prevention of Mal-Practice Cases.
Herbert M. Barbour, Esq., Detroit.
11. Miscellaneous Business. Under this head there will be a general discussion of questions of medical economics. The opportunity is presented to every member to bring before the Society any subject of general interest, either by informal discussion or formal resolution.
12. Nominations for President for 1914-15.
13. Adjournment.

SECOND GENERAL MEETING.

Friday, September 11th,

11:30 A. M.

1. Reading of Minutes.
2. Unfinished Business.
3. Report from the House of Delegates.
4. Miscellaneous Business.
5. Announcement of result of ballot for President.
6. Introduction and Installation of the President-elect.
7. Resolutions.
8. Adjournment *sine die*.

SCIENTIFIC SECTION MEETING.

By-Laws—Chapter III., Section 3. Except by special vote the order of exercises, papers and discussions as set forth in the official program shall be followed from day to day until it has been completed. No paper shall be read by title nor read by an other person than its author, except as a result of sickness of the author, or by the unanimous vote of the Section to which it belongs.

Sec. 4. No address or paper before the Society, except that of the President, shall occupy more than fifteen minutes in its delivery; and no mem-

ber shall speak more than five minutes or more than once on any subject.

Sec. 5. All papers read before the Society shall be its property. Each paper read shall be immediately deposited with the Secretary of the Section.

SECTION ON OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

Chairman—C. H. Baker, Bay City.

Secretary—Wilfred Haughey, Battle Creek.

(As soon as a paper has been read it is to be filed with the secretary).

1. "Bacteriology and Bacterial Therapy of the Upper Air Passages." Anna O'Dell, Detroit.
2. "Infections from the Zymotic Fever."
A. E. Bulson, Jackson.
3. "Influenza, Coryza, Seasonal Infections, etc."
Louis J. Goux, Detroit.
4. "Intranasal and Pharyngeal Infections in Relation to Eye and Ear."
E. P. Wilbur, Kalamazoo.
5. "Acute and Chronic Sinusitis of Nasal and Pharyngeal Origin."
Ferris N. Smith, Grand Rapids.
6. "Squirrel Plague Conjunctivities."
Derrick T. Vail, Cincinnati, O.
7. "Physiological Physics in Relation to the Eye and Ear."
Austin F. Burdick, Lansing.
8. Subject to be announced.
Stanley G. Miner, Detroit.
9. Subject to be announced.
John E. Gleason, Detroit.
10. "Resection of the Inferior Turbinate, by Special Flap Method."
Otto T. Freer, Chicago.
11. "Hemorrhage from the Ear."
W. E. Newark, Charlotte.
12. Subject to be announced.
J. M. Robb, Detroit.
13. "Conservation of Vision."
E. W. E. Patterson, Grand Rapids.

SECTION ON SURGERY.

Chairman—A. M. Campbell, Grand Rapids.

Secretary—A. M. Stirling, Detroit.

First Session, Thursday Afternoon, Sept. 10th.

1:45 P. M.

(The Secretary of the Section will collect all papers as soon as they are read).

1. "Benign Tumors of the Stomach." Chairman's address. A. M. Campbell, Grand Rapids.
Discussants 1.
2. Alexander Blain
2. "Skull Fractures." Frank W. Walker, Detroit.
Discussants 1. H. B. Torrey.
2
3. "Exophthalmic Goiter." Neil J. McLean, Detroit.
Discussants 1. Rolland Parmeter.
2
4. "Ileus." Raymond C. Andries, Detroit.
Discussants 1. Angus McLean.
2

Second Session, Friday Morning, Sept. 11th.

9 A. M.

5. "Gastro-Enterostomy." Max Ballin, Detroit.
Discussants 1.
2.
6. "Appendicitis." C. D. Brooks, Detroit.
Discussants 1. C. D. Munro, Jackson.
2. W. Ballard, Bay City.
7. Subject to be announced later.
D. N. Eisendrath, Chicago.
Discussants 1.
2.
8. Subject to be announced later.
E. H. Beckman, Rochester, Minn.
Discussants 1.
2.
9. Subject to be announced later.
F. B. Marshall, Muskegon.
Discussants 1.
2.

Third Session, Friday Afternoon, Sept. 11th.

1:45 P. M.

10. "Surgery of the Sigmoid."
L. J. Hirschman, Detroit.
Discussants 1. J. A. McMillan.
2.
11. Subject to be announced later.
W. Seaman Bainbridge, New York City
Discussants 1.
2.
12. "Perforating Ulcers of the Stomach and Duodenum." Geo. E. Potter, Detroit.
Discussants 1.
2.
13. "Symposium. Cystoscopic Diagnosis."
Tuberculosis—Fred H. Cole.
Stone—Wm. J. Cassidy.
Neoplasms—Wm. E. Keene.

SECTION ON GYNECOLOGY AND OBSTETRICS.

Chairman, C. E. Boys, Kalamazoo.
Secretary, Walter M. Manton, Detroit.

(The secretary will collect all papers as soon as they are read.)

First Session, Thursday September 10th.

1:45 P. M.

1. H. W. Yates, Detroit.
2. Channing W. Barrett, Chicago.
3. W. E. Welz, Detroit.
4. R. W. G. Owen, Detroit.
5. Geo. Kamperman, Detroit.
6. Chas. Hollister Judd, Detroit.
7. John N. Bell, Detroit.
8. Rowland Webb, Grand Rapids.
9. Symposium.

SECTION ON GENERAL MEDICINE.

Chairman—M. A. Mortenson, Battle Creek.
Secretary—Benj. A. Shepard, Kalamazoo.

First Session, Thursday Afternoon, Sept. 10th.

1:45 P. M.

(The Secretary of the Section will collect all papers as soon as they are read).

1. Chairman's Address.
Benj. A. Shepard, Kalamazoo.

2. "Gastric and Duodenal Ulcer."

E. L. Eggleston, Battle Creek.

3. Subject to be announced later.

Frank O. Penoyer, South Haven

4. "Practical Methods for Determining Cardiac Irregularities." Hugo A. Freund, Detroit.

5. "Roentgenology of the Heart."

Lantern Slide Demonstration.

A. W. Crane, Kalamazoo

Second Session, Friday Morning, Sept. 11th.

9 A. M.

6. "The Non-operative Management of Surgical Affections of the Prostate Gland."
Arthur E. West, Kalamazoo.
7. "Syphilis of the Nervous System."
Wesley Taylor, Detroit.
8. "The Serological Treatment of Diseases of the Nervous System."
Chas. W. Hitchcock, Detroit.
9. "Biological Foundation for Mendel's Laws of Heredity."
Prof. L. H. Harvey, Kalamazoo.

Third Session, Friday Afternoon, Sept. 11th.

1:45 P. M.

10. "The Early Diagnosis of Tuberculosis."
E. B. Pierce, Howell.
11. "The Value of Tuberculin in the Treatment of Tuberculosis."
V. C. Vaughan, Jr., Detroit.
12. "The Medical Treatment of Graves Disease."
M. M. Portis, Chicago.
13. "The Roentgen Evidences of Cholelithiasis."
Lantern Slide Demonstration.
James T. Case, Battle Creek

COUNTY SECRETARIES ASSOCIATION.**Sixth Annual Meeting.****Wednesday Afternoon, Sept. 9th,**

2:30 P. M.

Capitol Building.

President, C. T. Southworth, Monroe.

Secretary, C. B. Fulkerson, Kalamazoo.

Order of Business.

1. Call to order and roll call.
2. President's address.
3. Address by President of the State Society.
Guy Lincoln Kiefer, Detroit.
4. "Is the Physician justly paid for his Services? If not how can we increase his Income?"
Dr. J. J. Fabian, Grand Rapids, Mich.
5. "The Mission of the County Medical Society and Duties of Local Medical Organization in the way of Public Service."
Dr. Frederick R. Green, Chicago, Ill.
6. Organized Efforts.
Dr. F. C. Warnshuis, Grand Rapids, Mich.
7. "What a Councilor can do to aid his Medical Society."
Dr. W. J. DuBois, Grand Rapids, Mich.
8. Shall the Secretaries Association meet bi-annually? General discussion.

The Council of Michigan State Medical Society will give complimentary dinner to County Secretaries at Downey House 5:30 p. m.

Roll call of secretaries.

Informal discussion by Councilors and County Secretaries.

Every County Secretary should be present himself and see to it that his Councilor attends this meeting.

Councilors and Secretaries have mutual responsibilities in Medical Society work. Hence a meeting of this type should be greatly beneficial.

C. B. Fulkerson, Secretary.

COMMITTEE ON CREDENTIALS.

H. R. Varney Detroit, Chairman
A. S. Kitchen Escanaba
W. B. James Port Huron

INVITED GUESTS.

E. H. Beckman, Mayo Clinic, Rochester, Minn.
Otto Freer, Chicago.
D. N. Eisendrath, Chicago.
Derrick T. Vail, Cincinnati.
Archibald H. MacLaren, Winnipeg, Canada.
W. Seaman Bainbridge, New York City.
Channing W. Barrette, Chicago.

ENTERTAINMENT.

Wednesday Evening, Sept. 9th.

The members will be entertained informally by the Ingham County Medical Society Wednesday evening. The place and nature of the entertainment will be announced in the September *Journal*. This entertainment is provided for the members of the Council, members of the House of Delegates and the County Secretaries, whose presence will be required on the afternoon of the 9th in order that they may attend the first meeting of their respective organizations. All other members arriving in Lansing on the evening of the 9th are cordially invited and urged to participate in this social function. An enjoyable evening is assured. Thursday afternoon, 4:30 o'clock. Automobile rides to points of interest.

Thursday Evening, 6:30 o'clock. Informal dinner as guests of the Lansing profession.

Thursday evening, 8 o'clock. President's Reception—Rotunda of the Capitol Building—Dancing—Concert by the Military Band on the Capitol grounds.

FOR THE VISITING LADIES.

Suitable and enjoyable entertainment will be provided for the visiting ladies. The details will be published next month. The Lansing profession especially invite the Doctors' wives to attend this meeting of the State Society and promise them a pleasant visit.

REGISTRATION.

The members are requested to register as soon as possible after their arrival. The Registration Bureau will be located in the Capitol Building.

Upon registration each member will receive an official program, badge and announcements of all details and arrangements. A general information bureau will also be conducted in connection with the registration bureau.

HOTELS IN LANSING.

Hotel Downey, European. \$1.50 to \$4.00. Capacity 300.

Hotel Wentworth. European. \$1.00 to \$2.00. Capacity 500.

Hotel Butler. European. \$1.00 to \$2.00. Capacity 100.

Hotel Fleming. European. \$1.00 to \$2.00. Capacity 50.

Hotel Reogrand. American. \$1.50 to \$2.00. Capacity 50.

Hotel New Digby. American. \$2.00. Capacity 50.

The Committee on Hotels will also have a list of rooms in private residences and those who desire such accommodations may secure them by applying at the Registration Bureau.

DON'T FAIL

To Attend This Meeting

The Complete Program

Will Appear in the

SEPTEMBER JOURNAL

More Interesting Features

Are Being Developed

Post a Sign in Your Office:

I WILL BE IN LANSING

ON

SEPTEMBER 10th AND 11th

IN ATTENDANCE AT

THE 49th ANNUAL MEETING

OF THE

MICHIGAN STATE MEDICAL

SOCIETY

County Society News

GRATIOT COUNTY

The first monthly meeting of the Gratiot County Medical Society was held on June 30th at Brainerd Hospital in Alma, nine members and three visitors being present. On account of Dr. C. D. Brooks wishing to return at 3:30 the usual order of business was not followed. Dr. Monfort called the members to order and Dr. Brooks proceeded at once with his talk on Diseases of the Thyroid, using the patients furnished by the members to illustrate the different kinds of diseases of the thyroid. Seven patients were shown illustrating nearly every variety of disease of the thyroid. The doctor is a rapid talker so that he covered the subject very well. Remarks were heard afterwards that this was the best clinic we had ever had. In the time allowed for discussion many questions were asked of Dr. Brooks.

Mr. W. A. Bahlke then addressed us on Medico-legal questions, dwelling particularly on Mal-practice questions, and especially on the recent decision of the Supreme Court in the case of Daily vs. Schaeffer, where the court did not recognize the emergency rule which excuses a doctor for an error of judgment in an emergency. A petition for a rehearing has been asked in this case. If denied it will mean a great loss to the medical profession of Michigan.

Mr. Bahlke was kind enough to answer questions which a number of the doctors asked. He was given a vote of thanks after the regular order of business was followed. Dr. Foust then read a paper on "Suggestions in Purchasing and Dispensing of Drugs by Physicians." This paper was discussed by nearly everyone present.

Dr. C. A. Crane of North Star then read a report of an interesting case of sacculated empyema.

Mrs. Brainerd then asked us to the dining room. Mrs. Brainerd's ability in the banquet line is too well known to need any comment. We really believe she outdid herself this time; the doctors were all profuse in their thanks to Mrs. Brainerd.

A general feeling of good will permeated all, and remarks were heard that if our monthly meetings were all as good as this they would certainly be successful.

E. M. HIGHFIELD, Secretary.

The second monthly meeting of the Gratiot County Medical Society will be held August 4th, 1914, at the Wright House in Alma, at 2 p. m., when the following program will be carried out:

Reading the minutes of last meeting.

Clinic:

Paper, "Care of the pregnant woman before labor, including the prevention of eclampsia."

Dr. R. G. Dean

Paper, "The conduct of normal labor in the average home."

Dr. M. C. Hubbard.

Paper, "The management of abnormal presentations, including post partum hemorrhage."

Dr. F. J. Graham

Paper, "Obstetrical operations including forceps."

Dr. I. N. Brainerd.

Discussion opened by Dr. C. B. Hall.

E. M. HIGHFIELD, Secretary.

HOUGHTON COUNTY

The regular meeting of the Houghton County Medical Society was held at the Scott Hotel, Hancock, July 26, 1914. The first number on the program, Sciatica, by A. D. Aldrich was a report of a case cured after the eighth injection of quinine and urea. Dr. W. H. Matchette reported a case of a female age 21 with a congenital absence of vagina and uterus, ovaries being present. Patient menstruated vicariously through the nose every twenty-eight days. Operation advised as patient desired marriage. Dr. H. M. Joy presented a case of Ileocecal Tuberculosis with specimen of ileo cecal valve. Meeting was then adjourned.

I. D. STERN, Secretary.

LENAWEE COUNTY

The June meeting was held June 9, 1914 in the Carnegie Library building and called to order by the president, Dr. I. L. Spalding, of Hudson. Dr. Esli T. Murden was named to act as secretary.

On account of the absence of Secretary, Dr. F. A. Howland, the minutes of the previous meeting were not presented and the society proceeded to the rendition of the prepared program.

Dr. L. A. Levison, of Toledo, Ohio, gave a very interesting address, his subject being "Syphilis: Modern Means of Diagnosis and Treatment, with Special Reference to the Central Nervous System." The sixteen members present profited much from the doctor's address and he was given a unanimous vote of thanks by the society.

Dr. Morden made a motion that the Library janitor be presented with a check of \$2.00 for his kind services. Dr. Jewett supported the motion, and the society voted unanimously for it.

Dr. Stafford then announced that he had received a long-distance telephone message from Dr. Hugo Freund, of Detroit, expressing his regret that he could not be present to address the society on this occasion but that he would be glad to meet with us in the autumn.

In the absence of Dr. Freund, Dr. Esli T. Morden presented a paper on "Middle-ear Inflammation."

After a short discussion of this paper, there being no further business, the society adjourned.

ESLI T. MORDEN, Sec'y Pro-tem.

LENAWEE COUNTY

The Lenawee County Medical Society held its July meeting at the Adrian Public Library. It was

a meeting of unusual interest on account of the society being able to secure Dr. G. M. Todd of Toledo, Ohio, a man who has had wide experience not only in the general practice of his profession but also in the special subject, "Cancer of the Breast," to which he has devoted a considerable amount of time in doing research work.

Dr. Todd illustrated his address with a large number of lantern slides, which were ably handled by his assistant Mr. Breeze.

Although the rain made the roads rather bad, still it did not prevent a very good attendance by physicians from all over the country.

The August meeting of the Society is planned to be a picnic and to be held at Monroe Piers, Tuesday, August 11th.

UPPER PENINSULA MEDICAL SOCIETY

Program for the 1914 Meeting.

Held under the auspices of the Houghton County Medical Society at Houghton, Mich., Tuesday and Wednesday, August 11 and 12, 1914.

Meeting in the Masonic Temple.

H. J. Hornbogen, President, Marquette.

Geo. Barrett, First Vice President, Negaunee.

C. H. Moll, Second Vice President, Kenton.

I. D. Stern, Secretary, Houghton.

Program.

Introduction—P. D. MacNoughton, Calumet.

Invocation—Rev. F. P. Knowles, Houghton.

Address of Welcome—John A. Doelle, Houghton.

President's Address—Care of the Eyes from a Hygienic Standpoint, H. J. Hornbogen, Marquette.

Tuesday Afternoon, 1:30 O'clock.

1. Internal Secretions—A. B. Simpson, Calumet.
2. The Heart—A. F. Snyder, Escanaba.
3. Cerebellar Cyst-Diagnosis and Treatment—W. Elliott, Escanaba.
4. Sinusitis—C. R. Elwood, Menominee.
5. Infant Feeding—R. B. Harkness, Houghton.
6. A few Acute Abdominal Infections, F. M. Harkin, Marquette.
7. Skin Grafting—M. D. Bird, Marinette.

Tuesday Evening 7:30 O'clock.

8. Haste and Delay—A. I. Lawbaugh, Calumet.
9. The Accessory Sinuses—P. D. MacNaughton, Calumet.

Wednesday Morning, 10 O'clock.

Business Meeting and Election of Officers.

Wednesday Afternoon.

- 1:00 O'clock. Automobile ride to places of interest
- 4:00 O'clock. Boat ride on Lake Superior.
- 7:30 O'clock. Banquet at Onigaming Yacht Club.

Book Reviews

THE OCCUPATIONAL DISEASES. THE CAUSATION, SYMPTOMS, TREATMENT AND PREVENTION. By W.

Gilman Thompson, M.D., Professor of Medicine, Cornell University College, New York; Visiting Physician to Bellevue Hospital. Illustrated, Cloth, 724 pages. Price \$6.00. D. Appleton & Company, New York.

This is the first work of this kind to be published in this country and is designed primarily for physicians interested in the subject of Occupational Diseases of Modern Life, and also as a guide for students of social economics, social service workers, insurance actuaries, and those whose special interests deal with problems of labor legislation, or with workers in chemical, textile and many other manufacturers, or trades in which the health of the workman is closely related to problems of efficiency and humanitarian effort. Other works upon this subject have been published but all by foreign authors. It is exceedingly opportune that this work by an American author should make its appearance at the present time. Throughout all America there is growing to be realized that our large industries owe to its laborers more than his daily wage. Investigations may reveal that the surroundings of a workman exert a marked influence upon his efficiency and the service he renders his employer. The workman's social and home life are also of importance. It is being realized that a greater amount of trust and heartier co-operation of employers and employed is being demanded. Light upon these problems is being sought. The author has succeeded in writing a book containing all that is known upon the subject. Its arrangement, method of treatment of the several subjects, statistical data and the explanations, etiology, pathology prevention and treatment of occupational diseases leaves nothing to be desired and much to commend. The volume is bound to secure a welcome reception and supplies a distinct want. It is commended unhesitatingly.

PSYCHOLOGY AND MENTAL DISEASE. For use in training schools for attendants and nurses and in mental classes, and as a ready reference for the practitioner. By C. B. Burr, M.D. Medical Director of Oak Grove Hospital (Flint, Mich.) for mental and nervous diseases; formerly Medical Superintendent of the Eastern Michigan Asylum; Member of the American Medico-Psychological Association, of the American Medical Association, of the American Neurological Association, of the Detroit Society of Neurology and Psychiatry; Corresponding Fellow of the Detroit Academy of Medicine; Foreign Associate member of the Societe Medico-Psychologique of Paris, etc. Fourth edition revised and enlarged with illustrations. Price \$1.50. Philadelphia, F. A. Davis Company, Publishers. English Depot: Stanley Phillips, London.

That a fourth edition is called for is ample evidence of the worth of a book. Each edition of Dr. Burr's book has been an improvement upon its predecessor. A pioneer in its particular field, the Primer of Psychology and Mental Disease soon

won itself an important place, and now comes *The Handbook of Psychology and Mental Disease*, with noteworthy additions, which greatly enhance its value.

In the section on Psychology, Dr. Burr has discriminatingly elaborated his earlier observations and interestingly pointed out the particular impairments of the mental processes which occur in the various types of insanity. Toward its close, he has added valuable pages upon the pathology of the volitional processes, upon inattentiveness, incoherence, flight of ideas, verbigeration and stereotypy. The pressure of activity, retardation, opposition and negativism are also most interestingly discussed.

Part II consists of an entirely new chapter upon symbolism in Sanity and in Insanity, a chapter so rich in the language of symbolism as to make most interesting, instructive, and entertaining reading. Into the chapter is woven not only the more common symbolism of every-day life but that which is peculiar to pathologic mental states and all is happily touched here and there with a delightful humor.

Part III has for its subject the consideration of Insanity. Its causes are intelligently, though tersely dwelt upon and then follows a discussion of its forms.

The groups of the psychoses are separately taken up, the mental and physical changes in each carefully pointed out, making clear the cardinal points of diagnosis, differential and other, and the essentials in the treatment of each group are succinctly dwelt upon.

The long and large experience of the author enables him to make valuable illustrative use of the sayings and doings of a number of patients, in the emphasis of various points. The value of the work of Freud and of the modern treatment of syphilitic states is emphasized. The hysterical insanities—states of obsession, dual personality, fugues, anxiety neuroses—are discussed at some length.

Part IV has to do with the Management of Cases of Insanity from the Medical standpoint and should prove of distinct value to the student and the general practitioner, just as Part V relating to the Management of Cases of Insanity from the Nursing Standpoint will be found to contain valuable and instructive hints and cautions for the nurse and attendant. Every graduate of a training-school should read this section with especial care.

Dr. Burr has given us a book which will prove of unquestioned value to the student, the practitioner and the nurse. It fills a wider field and better, than has any previous edition. Several new illustrations have been added, notably a drawing of a neurone from the brain of a Cebu monkey by Dr. J. F. Burkholder. *The author is to be congratulated upon this new product of his able pen.*

INTERNATIONAL CLINICS. A quarterly of illustrated clinical lectures and especially prepared original articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Ortho-

pedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene and other topics of interest to students and practitioners. Edited by Henry W. Cattell, A.M., M.D., of Philadelphia. Vol. II, twenty-fourth series, 1914. J. B. Lippincott Co., Philadelphia. Price \$2.00.

These Clinics have become so valuable that the subscriber awaits the arrival of the next issue with eager anticipation. He knows that it will bring him an abundance of information that will enable him to do better work. This number is filled with excellent articles and discussions. It is difficult for the reviewers to single out any given article and commend it above the universal commendation. Timely, terse, to the point, often the last word upon the subject. Our readers are passing valuable material when they deprive themselves of this series containing twenty-three excellent articles.

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ABDERHALDEN'S SERO ENZYME TEST FOR SYPHILIS.

H. R. VARNEY, M.D. AND P. F. MORSE, M.D.
DETROIT, MICH.

(From the Theodore D. Bull Memorial Research Laboratories of Harper Hospital).

A scientific question is solved as a puzzle. In no man's brain does the answer spring full blown, but each one's contribution suggests a line of work to someone else until after many trials, and after much tearing down and building up, the problem finally stands fully developed and unassailable. Nothing shows that men are really the vehicles of the time's ideas so well as the studies of immunity. On no one subject is the literature so voluminous and the trend is all toward the idea that immunity is not a complicated matter of many interacting substances in the organism, but is simply one of the manifestations of ferment action.

Long dominated by the invaluable but involved hypothesis of Ehrlich with its multi-morphous side-chains and intermediary bodies, each of which has as many names as Joseph's coat had colors, the ideas of immunity were for a long time hampered by what we may call a graphic conception. We visualized side chain and our immunity concepts were symbolic rather than descriptive.

To America belongs the honor of breaking out from this restraint and it was Vaughan's work and suggestions on the parenteral injection of proteins that gave the new trend to our conceptions of immunity. As we are becoming more and more aware, immunity is a simple matter of parenteral digestion by ferments elaborated by the body cells. These ferments may be retained within the cells or discharged into the blood or may be shown in both the blood current and certain groups of cells coincidentally.

Abderhalden has applied the principle of parenteral digestion *in vitro* by subjecting the foreign protein to the ferment present in the blood serum, showing that the protein is broken down

into simpler dialysable bodies which may be detected in a dialysate by determining their amino-acid groups with tricketo-hydrinhydrenate.

The technic consists in mixing the immune blood with the thoroughly coagulated washed antigenic protein in a dialysing thimble and hanging the thimble in a capsule of distilled water. The capsule is incubated for twelve hours or longer and finally the dialysate is tested for amino-acid groups with ninhydrin.

The possibilities which this work of Abderhalden's suggests are numerous. Already the technic has been applied to many and diverse conditions from psychiatry to infectious diseases and to derangements of the internal secretory apparatus.

The limitations of the Wassermann reaction leave much to be desired of it as a test for syphilis. In the first place, as now used it is not a specific immune reaction but a lipotropic phenomenon common to several diseases. The time consuming preparation of the necessary material and the necessity of carefully controlling and standardizing it detracts somewhat from its usefulness as a test. The experience and judgment necessary in a reliable Wassermann worker confine the reaction to the specialist and prevents its universal application. As now used there is no such thing as a specific syphilitic antigen.

ADVANTAGES OF THE ENZYMES.

Theoretically then, the enzyme test as applied to syphilis has great advantages. In the first place it should be specific, and in the second place the technical procedure is simple in principle and the materials required small in number and amount. This technic consists in placing a fragment of the prepared syphiloma and the suspected blood in a dialyzing thimble, incubation and subsequent testing for amino acids by the biuret reaction or ninhydrin. When we apply this test, however, we are confronted with certain technical difficulties. In the first place this blood must be drawn in such a way that no hemolysis will take place resulting in a pink serum after separation from the clot. The technic of withdrawal and subsequent handling

are discarded. Further the tubes are all saved beside their respective sacs, and the depth of color as nearly as possible compared for the purpose of matching the sacs in pairs or in groups of three. These sacs are numbered with India ink on their rims for further identification. Since exactly eight cubic centimeters of dialysate and one-half cubic centimeter of peptone are used, followed by an equal incubation period the intensity of color in equal volumes of dialysate with equal volumes of indicator boiled for the same length of time should be equal in equally permeable sacs. We think this point is important and will only use sacs belonging to the same group when controlling a serum in the test.

The acceptable sacs are now washed thoroughly and placed in a jar of distilled water over chloroform, and under toluol until needed.

For use they are rinsed and heated as before and placed in the dialyzing capsules. One half cubic centimeter of serum is now placed in the sacs and a small piece of syphilitic tissue added. It was suggested by one of us (Varney) that human syphiloma theoretically should be more suitable for the test than the lesions on rabbit testicle because of its greater specificity. We have therefore used small pieces of richly vegetating condyloma which dark field examination showed to be loaded with spirochaetae. Controlling this in a large number of tests we have used the syphiloma of a rabbit's testis rich in spirochaetae. The tissue is prepared by thoroughly washing in salt solution, while fresh, to remove the blood, (this is not so necessary in the case of lesions in the rabbit testis) and then boiling thoroughly in distilled water until the water gives no reaction with ninhydrin. Small fragments of this tissue were preserved dry in sterile flasks and other fragments over chloroform in distilled water under toluol.

Toluol six drops is placed inside and outside the sacs, the capsule corked and the whole placed in the incubator for twelve to eighteen hours. At the end of this time the dialysate is measured into test tubes in quantities of five cubic centimeters per tube, four drops of ninhydrin added and boiled for exactly one minute. It is well to let the tube stand a few minutes to develop the full depth of color.

For each serum to be tested three tubes are necessary plus a common control containing tissue and salt solution only.

In one tube we have human condyloma plus serum, in the second rabbit syphiloma plus serum, and in the third serum alone. Obviously a positive test should show a distinct blue in the dialysate of the sac containing tissue and none or a slight reaction in the serum control, depending upon the amount of amino-acid present in the serum itself. We believe that the tissue should be boiled in fresh water a moment each

time before being used to insure its freedom from amino acids and chloroform, since it has seemed to us that chloroform interferes with the reaction.

The blood we find is best obtained directly in a Swift-Ellis tube by a large bore McRae needle. This allows centrifugation if necessary without transferring the blood. A further precaution to insure against hemolysis is to have the "S.-E." tube kept in sterile physiological salt solution ready for use.

INTERPRETATION OF FINDINGS.

The interpretation of the findings of the cases reported are as follows:

Of the seventy-five cases forty-five were clinically syphilitic and were positive to repeated Wassermann reactions. From this number of positive Wassermann findings 35, or 77.7 per cent. were positive to the enzyme reaction with human condyloma. Six sera from non syphilitic showed positive findings to the enzyme reaction, with human condyloma tissue: five of which presented clinical pus conditions. Ten clinically positive Wassermann serums were negative to the enzyme condyloma. Of the forty-three cases in which rabbit syphiloma was used, twenty-three of which showed positive Wassermann reactions, fourteen or 60.9 per cent. were positive to the enzyme reaction, nine sera which were clinically syphilitic, with positive Wassermanns failed to show the reaction with the syphiloma tissue from rabbits. Thus far the human condyloma tissue has shown a greater percentage of positive reactions than the syphilomata of rabbits. (77.7 per cent. against 60.9 per cent.)

On the other hand the condyloma tissue shows reactions from its mixed infection condition in non-syphilitic sera when the patient harbors any mixed infection. The syphilomata from rabbits gave no reactions in non-syphilitic conditions thus far examined. Syphilitic spinal fluid gave negative reactions to both tissues uniformly. Non-syphilitic diseases such as scarlet-fever in the florid stage, psoriasis, eczema, erythema-multiforma as well as ether-narcosis were uniformly negative to both tissues with but one exception, and that a case of psoriasis whose serum gave a positive reaction to the human condyloma tissue, this patient presenting boils at the time that the serum was taken.

These cases with but few exceptions were selected from the private cases of one of us (Varney) and have therefore been under careful observation both clinically and serologically for a long period of time.

CONCLUSIONS.

From these few experiments we think we are justified in assuming:

1. That the specificity of the Abderhalden technic applies to syphilis.

2. That syphilitics have in their blood serum enzymes which react with the protein of the organism.

3. That tissue derived from active human lesions are more specific than syphilitic tissue of the rabbit.

4. That mixed infection in the human lesion gives rise to error in mixed infections as shown in our cases of sinus disease, furunculosis, etc.

5. Further work will be required to determine whether all syphilitics have the power of developing ferment and at what stages of the disease the test is present or absent.

6. We believe that polyvalent antigens prepared from several stains of pure culture of the spirocheatae offer the best hope for further success with this technic.

7. That the degree of the success with the test varies in proportion to the care and precision exercised in its execution.

8. That for the present, no matter how carefully the material is prepared or the test carried out, this method does not by any means approximate the Wassermann reaction for practical usefulness.

GASTRO-ENTEROLOGY AND ITS PROBLEMS.*

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Perhaps in no other field of medicine have more revolutionary advances been made, advances which have compelled us to quite change our earlier conception of function, of disease and of treatment, than in the field of gastro-enterology.

It was in 1867 that Kussmaul brought out and used for the first time the stomach tube in the diagnosis and treatment of gastric disorders. Now followed a tremendous amount of work on the stomach secretions, the results of which were accepted at a value which we know to have been all out of proportion to their real importance. To the stomach was attributed a great number of diseases which did not properly belong to it. Secure, however, in such knowledge as he did possess, and unaware that many of his choice conceptions were faulty, the gastro-enterologist of a decade or so ago felt that he stood on a firm foundation—it is sure enough shifting-sand today.

The specialty had certain very attractive features: for one thing it seemed to offer rather unusual accuracy in diagnosis. The exact degree of gastric acidity was interpreted as having a meaning all its own, distinct and positive, so

the exact time of absorption, so the accurate determination of pepsin and rennet, so the exact degree of ptosis. Stomach lavage and stomach lights, and stomach balloons and churns and electrodes were popular with both the profession and their patients. With gastric symptoms attributed to true local disease, such therapy was not unreasonable, but the patient whose symptoms were due to chronic gall-bladder disease, appendicitis, arterial sclerosis, chronic nephritis, or locomotor-ataxia, proved unresponsive to such treatment, and most embarrassing to the doctor. So with further investigation, and the resulting increase in knowledge, came the gastro-enterologist of today, who, if he is at all up with the procession, spends less time with his treatments, and much more time on his diagnosis.

Realizing fully the manifold interrelations which must exist in an organ so closely associated through its nerve supply with other organs, both above and below the diaphragm, never forgetting that the stomach is closely connected with the basal-ganglia of the brain through its pneumogastric nerve, and so particularly susceptible to the influences of psychical impressions, the thoroughly competent gastro-enterologist of today must be of necessity a general diagnostician, a good internist; he must also be a laboratory man to a considerable extent, for if he has come to consider the absolute estimation of combined and free and organic acids of lesser importance, he does not overlook the value that they do possess. In addition, he has the multiplied problems of metabolism to work out as best he may. The excretions have their relative importance and ever there is a search for that Will o' the Wisp, an exact laboratory method for the diagnosis of early carcinoma. In addition to these not to be lightly considered labors, he has to look to his defenses; he must defend himself and his patients from the inroads of the over-zealous surgeon, inoculated by the virus of much reading along purely surgical lines, until he comes to believe for instance, that every gastro-duodenal ulcer is a surgical case, the diagnosis of which is comparatively simple. In fact, it would be wondrous easy could he accept unmodified Surgeon Crile's epigrammatic statement that "the man who carries a cracker in his pocket, has a duodenal ulcer;" or Surgeon Moynihan's assertion that "hyper-acidity is but an expression of duodenal ulcer."

And then there is the X-Ray man. He certainly does look good to the ordinary layman, and be he ever so honest, his enthusiasm for his work frequently leads him to over confidence in the accuracy of his fluoroscopic and radiographic interpretations. I do appreciate the great diagnostic value of the radiograph and more particularly the value of the fluoroscopic. I appre-

*Read before the Kent County Medical Society, Feb. 1914.

ciate the advances in the physiology and pathology of the gastro-intestinal tract made possible by the workers in this line, but it is timely to say here for the benefit of both physician and layman using the words of Doctor Levi in a recent number of the *Medical Record*.¹ "The X-Ray is not a nickel in the slot machine where the patient comes out with a diagnosis attached." Whatever the improvement in technic may be, the time will never come when we may look for the X-Ray to be more than one of our diagnostic aids, valuable, it is true, but infinitely less valuable than the combination of history, laboratory findings and general physical examination. Naturally when the clinician and the X-Ray man work together, the results will approach the greater accuracy.

It is singularly appropriate that the word abdomen should be derived from the Latin word *abders*, meaning to conceal; it is more singular that with the great advances made in general pathology and physiology, the word should have retained its appropriateness to such a recent time. So very recent are these investigations of gastroenteric functions and pathology, that I deem it not inappropriate nor entirely unnecessary to trace briefly some of the advances and the associated problems which in the gastro-enterological field seem to be nearing solution.

GASTRIC PHYSIOLOGY.

To Pawlow and Chigin, in Europe, and to Cannon and Starling in this Country, are we particularly indebted for our modern conception of gastric physiology. These pioneers have had scores of followers, who have been especially favored by the opportunity afforded through the great advancement in abdominal surgery, and the use of the X-Ray. The idea of the stomach as a bag, a simple reservoir for food, emptying by gravity and lying transversely, has given place to the idea of an organ which in life and at work, lies vertically in the left hypochondrium, not a reservoir, but an organ adaptable in size to the requirements put upon it; whose walls are rather closely in opposition to each other save when food is ingested, and whose position, size and shape varies not only in different individuals, but at different times in the same individual. "There is no normal type of stomach, each person possesses a stomach that fits his body" (Mills).

We have had to readjust our views on gastro-ptosis not only in regard to its influence on gastric functions, but as to just what constitutes ptosis. The view held by Ewald that a stomach must be considered ptotic if it falls below the umbilicus must be modified by the X-Ray examinations which show that in a large series of apparently normal individuals, the

stomach falls from one to two and a half inches below. Now, just what is the significance of this so-called ptosis in direct relation to stomach function and symptoms? Mighty little. The real problem is practically limited to the integrity of motor power, the size and position are insignificant factors if the stomach but empties itself in a normal time, and though we may have ptosis, and atony and even dilatation, it is the motor insufficiency which is the important factor in the production of symptoms.

A word here in regard to tonus might not be out of place. Tonus of the stomach is that muscular power which enables the stomach to adapt itself to its contents so as to hold these contents in a columnar position. Cannon has shown that this tonicity finds efferent impulse in the vagi, with section of the vagi this tonicity is lost. These experiments would seem to prove that it is due to the vagi that the size of the stomach changes with the requirements of the ingested food. This tonic stage is preliminary to peristalsis, the walls must be able to contract down on the food. In this connection I should like to speak of the work of Eppinger and Hess on "Vagotonia and Its Significance."² They believe that the vagus on the one hand and the gangliated sympathetic cord on the other, are the two diametrically opposed forces which control nearly all the processes of vegetative life, maintaining in health a perfect equilibrium between excitation and inhibition. Dividing the nervous system into two groups, the animal and vegetative, the former represented by fibres running to the voluntary muscles and organs, the latter by fibres running to the involuntary muscles and such organs as the stomach, intestines, heart, etc., they sought to separate these systems. Finding it impossible to separate them anatomically on account of the numerous anastomoses existing they sought to do so functionally by the use of pharmacological agents which can be shown to have a marked affinity for one or the other of these systems. They experimented with pilocarpin, physostigmin, muscarine and atropine. They found that the first three had a special stimulating effect on the organs supplied by the vagus—extended, the so-called automatic system, while atropine had a definite depressive effect. They further positively determined that adrenalin has a specific effect in the stimulation of the sympathetic system. The reasonable conclusion is, that the internal secretions have to do with these stimuli, some acting on one system of nerve supply, its antagonist on the other. For instance, if we inject adrenalin intravenously we get a cessation of peristalsis, and Eppinger believes its antagonist to be some hormone similar physiolog-

1. Levy. Roentgen Rays in the Diagnosis of Diseases of the Stomach, *Medical Record*, Oct. 25, 1913.

2. Guiman. "Archives of Diagnosis, April, 1913. Hopkins. "A Clinical Study of Vagotonia," *Archives of Internal Medicine*, Nov. 5, 1913.

ically to pilocarpin. This substance he assumes to be a product of the internal secretion of the pancreas and calls it autonomen.

The term vagotonia is applied to those conditions in which the vagus is maintained in a state of hypertension, the organs which it supplies being peculiarly sensitive to vagus irritation. The smallest amount of pilocarpin, for instance, producing marked activity. Similarly there is marked insusceptibility to sympathetic stimulation.

The importance of this study is to be found in its application to individual organs. Symptoms of irritable vagus are manifested in the lungs by bronchial asthma, which can be produced in animals by peripheral vagus irritation (a classical example); increased bronchial secretion, spasm of the glottis, etc. In the stomach, by hypertonicity, hypermotility, great increase in gastric juice, and hyperacidity, pyloric spasm, and the gastralgias. In the intestine, the peristalsis is increased, producing either spastic constipation or diarrhea.

The authors state that the presence of an irritable vagus may materially influence the symptoms in the following pathological conditions—gastric ulcer and cancer, cholangitis, gallstones, cholecystitis, tabetic crisis and hyperthyroidism.

PYLORIC SPASM.

Certainly one of the most interesting—I am not sure but the most important of all factors in the study of the stomach, from the standpoint of physiology, of pathology, or diagnosis and of treatment—is associated with a proper understanding of the phenomena of pyloric spasm.

The experiments of Cannon opened to us a new field when they showed that the pylorus, the "Keeper of the Gate" as it was known to the ancients, is under acid control. That under the influence of the free acid of the stomach, of a certain degree of concentration, the pyloric sphincter relaxes, permitting the peristaltic wave to throw a jet of chyme into the duodenum. Almost coincident with this comes a reflex action on the part of the duodenum, itself stimulated by the acid, which closes the pylorus and holds it closed until the acid in the duodenum is neutralized through the flow of bile and pancreatic juice into this portion of the gut, where the stimulus to the closure of the pylorus on the part of the duodenum is weakened until the acid in the stomach once more opens the door. We might go further today, and suggest that we have here another example of this antagonism between sympathetic nerve stimulation and vagus nerve stimulation, referred to above in discussing the Eppinger and Hess experiments.

Not infrequently we have an interference with this sphincter control and there is pro-

duced obstruction of varying intensity, and of greatest importance. This is not an infrequent occurrence, but because of the failure to appreciate the condition, the clinical symptoms are frequently wrongfully interpreted and faulty diagnosis is frequently made. Now, what causes pyloric spasm? It is clear that since the sphincter is closed through irritation of certain nerve reflexes contained in the duodenal wall, that an over stimulation of this reflex will tend to produce a spastic condition. The most apparent causative factor is naturally an over acidity of gastric content, but given a normal acidity, or even an anacidity, it is easy to see how a local disease of the pylorus or duodenum can, through irritation, stimulate this reflex to over activity. The most severe spasms must occur when the combination of high acidity and raw surface, as in an ulcer, exist together, but a severe duodenitis may produce a similar condition, and from nearby diseased organs as the gall-bladder and appendix, from strangulation of the bowel and as has been shown experimentally, from gunshot wounds of the intestine, may come stimuli through the vagotonic nerve supply, causing a spasm as intense as those do to the nearer lesions. Stockton³ has seen pyloric spasm in cases of stone in the bladder, uterine retro displacements, and in nephritis, and says that more rarely it follows eye-strain, psychosthenia and nervous shock. In an excellent article on pyloric spasm, he says: "It is well to recognize pyloric spasm; it is usually fraught with meaning, however, it may mean widely different things, that is it may be produced from irritation arising in diverse regions. The confusing side of the matter, the difficulty of deciding upon the presence of pyloric spasm, depends upon the facts that the symptoms which the condition produces are not uniform. Here is a list of some of the most important manifestations; pain, epigastric tenderness, sour stomach, gaseous eructions, vomiting, which may become incoercible, a sensation of pressure or painful tension in the epigastric region, a definite area of resistance on palpation." The cardia during digestion is held in a state of tonic contraction also through acid control. Interference with normal intervention with the production of pyloric spasm, will reflexly cause a disturbance in the cardia which may relax from time to time, permitting eructation of gas, regurgitation of food and heartburn, symptoms ordinarily considered characteristic of hyperacidity, but which may occur without either an abnormal quantity of acid or gas in the stomach.

The dictum has gone out that hunger pain, pain an hour or two after eating, is almost pathognomonic of duodenal ulcer. It may well be suggestive but since hunger pain is but

3. C. C. Stockton. "Pyloric Spasm," Canadian Medical Association Journal, Dec., 1913.

the expression of pyloric spasm of marked degree, its interpretation must be well guarded, since anything which will produce this spasm will give a symptom.

Some one has well said that the stomach is the mouthpiece of many organs, it is only via the stomach that many of the organs below the diaphragm can come into contact with the conscious brain. This the gastro-enterologist fully realizes. He is willing to accept with some reservations the statement attributed to the Mayo clinic that only a paltry 10 per cent. of the patients presenting themselves with a so-called gastric disease have an actual demonstrable lesion, but he does object to the easy interpretation of this statement as suggestive that the 90 per cent. of cases are either surgical or due to a cause so remote that treatment directed towards the complaining organ is not efficient. Purely functional these symptoms may be, that is, the definite extrinsic or intrinsic cause is undeterminable, but there is evidence that this condition may offer a fertile soil for the later appearance of even such a definite, organic localized lesion as an ulcer. Take, for instance, the common irritative disorder hyper-acidity. Fenwick most emphatically states, whatever be the immediate cause of the hyper-secretion, the continued existence of the latter not only excites inflammation of the stomach and duodenum but also produces hemorrhagic erosions which occasionally increase in size and depth and finally acquire all the characteristic features of chronic ulcer. In this manner both gastric and duodenal ulcers are apt to ensue from hypersecretion due in the first instance to gall-stones and appendicitis, while the chronic colitis that develops in so many cases of hyper-secretion may eventually lead to appendicitis. This leads me to a brief discussion of the newer theories of peptic ulcers.

Before proceeding with this, however, I want to state that the purpose of this paper is not to make a special plea for the medical man especially interested in gastro-enterology any more than it is meant to be a criticism of the surgeon. I but want to show you some of the problems with which one is confronted, and to suggest that with a better understanding of physiology and pathology and etiology, the limitations of surgical treatment and the limitations of medical treatment as well, will be more sharply defined. We will not, for instance, overlook the fact that there may be in the individual patient an inborn or an acquired irritability of the vagus nerve—a tendency, if you will, to irritative disorders, which will remain unchanged by any surgical procedure.

GASTRO-DUODENAL ULCER.

The discoveries of the last few years indicate that at last we are about to solve the

mystery of the etiological factors concerned in the production of peptic ulcers. As a subject for theorization and discussion it has occupied a place only second to that time honored topic, *Why does the stomach not digest itself?*

There are several theories advanced, all of which are well substantiated by experimental data. It is probable that the truth lies either in the combination of these theories, or what is more likely that such an ulcer may find its etiology in different factors, some of which may act quite independently. It will be admitted that a peptic ulcer is a digestive ulcer, since it is only found in those areas with which the gastric juices come in contact. Freund's observation on an infant, two months old is interesting in this connection. The infant was operated on by gastro-enterostomy for pyloric stenosis. For a time progress was favorable, then came bloody stools followed by death, the autopsy showing ulceration of the jejunum below the opening which communicated with the stomach.

Since Weinland, in 1902, discovered the existence of an antipepsin in the wall of the stomach, and a similar substance antitrypsin in the intestinal wall, it has been appreciated that in part at least the existence of these opposing enzymes answers the question of why the stomach does not digest itself and bears an important relationship to the etiology of gastric and duodenal ulcer.

Katzenstein⁴ believes that the epithelial cells of the stomach and intestines have a selective action for the antipepsin in the circulating blood, similar to the selective action of the renal epithelium for renal substances. Working on this theory he concludes that a gastric ulcer is the result of a local injury to the stomach wall which does not heal on account of the disturbance of the normal pepsin—antipepsin balance in the gastric juice. Careful experimental data seem to support his hypothesis.

More interesting, perhaps more acceptable is the work of Wilkie⁵ which lead to the conclusion that a thrombosis of some of the smaller vessels of the stomach is the important factor. From this infarct comes the hemorrhagic erosion which Aschoff has shown is the first stage in ulcer development.

In order to test out his hypothesis he produced thrombi in the omentalveins by means of a simple ligation or by searing the tissues alongside the vein with a hot platinum needle. Later he produced artificial emboli by injection into the veins of emulsions of charcoal or dermatol in oil. The animals were killed in from three to seven days after the operation and careful autopsies performed. In every instance he found

4. Arch. f. Klin. Chir., 1913, Vol. C, p. 939.

5. Laboratory Reports Royal College of Physicians Edin. Vol. XII.

numerous minute infarets in the liver, thus showing that embolism had taken place along the normal blood course in the portal system. In a certain percentage of his animals he found in addition that there were multiple hemorrhagic erosions in the gastric mucosa. In addition to the erosions there was in three instances definite ulceration of the gastric mucosa and one animal showed an ulcer of the duodenum. These ulcers were punched out, sharply circumscribed areas and similar in every way to the acute gastric ulcer found in man. Microscopic examination showed that beneath the ulcerated area in the mucosa the minute vessels were thrombosed and that the thrombi moreover contained charcoal or dermatol when these substances had been injected into omental veins.

These experiments suggest that in them may lie at least a partial explanation of the association between gastroduodenal ulcer, appendicitis and gallbladder infection. The association of these diseases has long been recognized. In McCarthy and McGrath's study:

52 cases of ulcer.

26.9 per cent. were associated with chronic appendicitis.

In the Augustana Hospital reports 79 cases of ulcers.

44.3 per cent. were associated with chronic appendicitis.

17.7 bile tract infection.

3.8 with all three.

In Mitchell's series of cases, 48.

39½ per cent. were associated with chronic appendicitis.

LaRoque compiled the reports of 322 operative cases in 1910 and 1911. Thirty-three per cent of which were operated on for chronic appendicitis at the same time. This, it seems to me is open to the criticism that the determination of chronic appendicitis was made from gross appearance, and it is rather customary for the surgeon to remove an appendix on general principles when operating on the abdomen. It would seem, however, that there exists a clear etiological relationship between peptic ulcer and the infective processes in the region drained by the portal vein. In this connection I note the important work of Rosenow, of Chicago, on the production of ulcer of the stomach by the injection of various strains of streptococci. As a result of these experiments he draws the following conclusions⁶:

"Intravenous injection of streptococci of the proper grade of virulence may be followed by ulcer of the stomach and duodenum. The ulceration is due to a localized infection and secondary digestion. The ulcers are usually single and deep with marked tendency to hemorrhage and perforation, and resemble the human gastric ulcer in many respects. When we take into consideration this close re-

semblance, that injection of streptococci which have grown in tonsils produce the lesions, and that the virulence of the germs when the affinity for the stomach is greatest is of such character that a general infection does not occur, it appears altogether reasonable to suppose that in man gastric ulcer may be caused by streptococci also. The supposed relation between infected tonsils or gums and gastric ulcer may be due not to the swallowing of bacteria, as usually supposed, but to the entrance into the blood of streptococci of the proper kind of virulence to produce a local infection in the wall of the stomach. Many other observations might be cited such as associated infections of the gall-bladder and appendix, which suggest that gastric ulcer may be due to streptococci.

I cannot leave the subject of gastro-enterology and its problems without discussing what perhaps is the most important work of the year, the application of the Abderhalden method for the Sero-diagnosis of pregnancy to the Sero-diagnosis of carcinoma.

Ball, in a recent article in the *Medical Record*, says:

"Sufficient work has not yet been done to warrant the statement that cancerous conditions can be positively diagnosed; that this test appears to be useful in such cases, is confirmed by continued experiment with the Abderhalden technic in known malignancies. It is at least safe to say that there has been no test previously devised that runs so positive to a known condition of malignancy with so high a percentage of positive results. Further there is no test that runs so uniformly negative to all other conditions."

It is especially interesting to note that particularly in the early stages of cancer does this test seem to be particularly active. So much for the gastro-enterology and its problems.

If I have helped you to a greater appreciation of its involved physiological and pathological factors and suggested that it is through the study of these that the obscure troubles in the abdomen will find ultimately a clear and definite diagnosis with resulting intelligent treatment, this paper will have accomplished its purpose.

THE USE OF THE OMENTUM IN ABDOMINAL DRAINAGE.*

LEWIS S. RAMSDELL, M.D., F.A.C.S.
MANISTEE, MICH.

In circumscribed abscess and in partially localized infected areas of the abdomen, we have all observed the important part the omentum plays in the walling off of infections. This and the adhesions formed, of course, is the *modus operandi* by which nature protects against the involvement of other structures and we have seen in many chronic cases the almost perfect result of this process—the life saving remedy which alone could save the pa-

6. The Production of Ulcer of the Stomach by Injection of Streptococci, by E. C. Rosenow, M.D., Chicago. (The Journal of the American Medical Association, Nov. 29, 1913).

*Read before the Benzie County Medical Society August 5, 1914.

tient. We never cease to marvel at the wonders of nature's surgery; so much so that in many of our so-called surgical cases we gladly allow nature to do the first, the life-saving operation in our acute cases, and the surgeon afterwards does the pain-saving operation. Perhaps at times to save life by eliminating possible future acute attacks in which he feels that nature will not be able to continue her readjustment, but more often to break up and reconstruct what nature has done, to adjust conditions for the better comfort of the patient, after nature has done her part in the emergency and also to relieve mechanical and functional disturbances which have resulted from these protective formations. Hence we see in this, as in other physiological actions on the body, that natural processes can not be improved on. To be sure, they can be assisted, just as we assist them in the administering of serums and vaccines and it is the object of this paper to show that we should always keep in mind these important changes when operating on our acute infected cases. There is often a tendency to overlook this most important process and to try to do by purely artificial means what nature will do in part for us.

For example, in the introduction of drains, a most essential part of our technic in pus cases, (for the proper placing and selection of drains often means the question of life or death) this is generally the case.

As we enter the abdomen and approach the infected area, and that very guardedly, whether it be a gangrenous appendix, pus tube, gall bladder or what not, we first note what nature has done; whether we have a complete circumscribed abscess which is nicely walled off and adherent to the parietal walls and surrounding structure, or whether we have a circumscribed abscess which is free from the surrounding peritoneum and structures; or, whether the infected area is not walled off and no protection from the surrounding structures, such as we often find with a gangrenous appendix which has or has not ruptured, nature not having had time or for some other reason not having formed the protective adhesions.

The next step which we take is essentially different, with different operators; but, I find that this step is the all important part of the operation and the method which I have used in all such cases appeals to me as the best. I believe that the routine system, as I have observed it, is to start packing around the part in which we are going to enter the infected area and after thorough packing to go on with the work, removing the involved parts, or using simple drainage as we see fit. This I used to do but not without the gravest apprehension on account of the danger of getting free pus

in the peritoneal cavity. At present I am using the omentum when I can get it for this purpose and packing as usual afterward. While this is somewhat more time-consuming, it is time well spent and according to the recent slogan "Safety First."

TECHNIC.

Tucking the omentum around the infected area and securing by a stitch or two with fine gut, either to itself in such a way it will stay *in situ*, or often by putting a stitch from the omentum through the lower portion of the infected mass, being careful not to puncture into an abscess cavity, is the safe guard in these cases and sometimes is the essential operation. When the omentum is not available I often use the parietal peritoneum in the same way, so that any free pus that may be liberated will lodge outside the abdominal cavity.

When this technic can be accomplished successfully I believe we can leave our patient in better shape and that we have assisted nature in doing what we can not do without her aid.

First: The procedure protects the rest of the abdominal cavity from free pus which would result in general peritonitis or secondary abscesses.

Second; It requires less packing and handling of bowels, which is always desirable.

Third; It requires a smaller incision.

Fourth; It assures us better drainage, and quicker drainage.

Fifth; It does away with too large a drain.

Sixth; It localizes any secondary hemorrhage.

Seventh; It causes less liability to the formation of undesirable adhesions which would later cause functional disturbances.

SUGGESTIONS IN PURCHASING AND DISPENSING OF DRUGS BY PHYSICIANS

E. H. FOUST.
ITHACA, MICH.

There may not be anything scientific about this paper. There may not be anything contained in it that everyone of you here does not know and perchance there may not be anything in it that shall do any of you any good, however that may be I am firmly impressed with one fact and that is, that we all are helped by thinking and talking over ordinary things together.

We all enjoy hearing a good scientific talk or paper but I am certain that we all also enjoy, to the same extent, hearing papers from our brothers which, although less scientific, are full of the experience and trials that we too have had to deal with and to learn how our brother

handles the same; and the outcome is oftentimes of even much more benefit than that bordering on the ultra-scientific or the case which one seldom sees.

Coming down a little closer to my subject, that of purchasing and dispensing of drugs by physicians, we approach a subject which touches every man engaged in the practice of medicine. Perhaps not the perscription writing physician quite so directly or to the same extent as the dispensing physician, but the evils and bad practices to which I shall refer affect us both.

The practice of pharmacy has been a gradual growth. In the olden times the pharmacist was unknown, the medicine man gathered his own remedies and prepared them. As time went on, it developed to the extent that the physician learned that the man who devoted his time to the preparation of drugs was of great advantage to him in two ways: first, by applying himself steadily to the one work, he learned to compound more scientifically and his mixtures were equally as efficacious and much more palatable. Second, the time formerly employed in compounding medicines was to better advantage used in his own profession.

Then, as time passed, large drug houses began to take the place of the individual worker until the time has now finally arrived when, I presume I would be safe in saying that, 99 per cent. of all the drugs which are found on the physician's and even the pharmacist's shelves today were compounded by the large drug houses in the city.

This is all right and as it should be for the large drug houses are doing a work today never equalled in any other line, when you come to think of the methods they employ in standardizing their preparations, both chemically and physiologically.

But, while all this good work is going on, another phase of the question has arisen, and because of the part taken in the development of the same, it has worked to the disadvantage of the physician, and has helped to lower the standard in which as a class he is held in many communities. I refer to the proprietary and secret nostrum business being pushed by the same, otherwise commendable, houses, but no one is to blame any more than the physicians themselves, for if every physician always fought these euphoniously and idiotically named preparations wherever and whenever they were mentioned to him by telling his questioner that they were proprietary preparations of which he knew nothing of their ingredients and *always and ever* absolutely refused to use or prescribe them, the influence brought to bear upon the public would be so great that no remedy of the kind would long survive; but, so long as physicians will prescribe them and use them and still work, oftentimes in the original bottle with the firm's

name blown in the glass with all the directions for taking and loud speaking advertisement on the table telling just what, but not how much of each ingredient is in the preparation, and the wonderful curative power each ingredient has, just so long will they live and contribute toward the evil of self-doping with proprietary medicine.

Now, brothers, I am not referring to "Hosteters Bitters," "Swifts Syphilitic Specific," more commonly known as "S. S. S.," "Lydia Pinkham's Pills for Pale People," etc. etc., but to the more eloquently advertised, clothed in a professional cloak and handled with a self-righteous air, such as; "Ovo-Ferrin," "Henry's Maizolithium," "Sal Hepatica," "Ergo-Apiol-Smith," "Neurosine," "Antiphlogistine," "Gray's Glycerine Tonic," "Anedemin," the medicinal trocar in dropsical effusion, "Fellow's Syrup of Hypophosphites," etc. etc.

True, many of these remedies or preparations may contain medicines of tried worth and value but if so, why not use them instead of using a preparation put up by some drug house telling you by the name what is in it, then through sheer kindness, and any physician should take it as an insult, tell you what it is good for and what doses you should use. For instance: "Ergo-Apiol" (Smith) puts on their wrapper in large letters at the top "Ergo-Epiol-Smith." Just below, "For amenorrhoea, dysmenorrhoea, menorrhagia, metrorrhagia, etc." Dose, one or two capsules three or four times a day; then another: "Anedemin," the medicinal trocar in dropsical effusion equally as valuable in the cause. "Indications: ascites, anasarca, cirrhosis, nephritis, valvular disease, bright's disease, or all dropsies resulting from renal, hepatic or cardiac disease." *Listen*, "50,000 physicians prescribe. Quick in action. Positive in results. An ideal cardiac tonic. Removes the effusion in the most obstinate case in thirty-six to forty-eight hours, etc. etc."

What are we as physicians thinking about to tolerate such statements in the medical journals for which we subscribe, to say nothing of actually using or prescribing such junk? I know a physician who writes a prescription for "Rexal's Nerve Tonic," "Rexal's Blood Purifier" and "Rexal's Cathartic Pills." I say I know, yes, because I have seen the prescriptions, but thank God, I do not know one in Gratiot county and I hope I never may.

Now there are two other points I wish to make: first in regard to the expense of many of these combinations. Even considering that you were to use them secretly not prescribing in the original bottles, you will find as a rule only one or two ingredients, if the amount is mentioned at all, present in sufficient amount to be of any therapeutic value. If you will count up the cost of these ingredients, in the very large majority of cases you will find that you can

make up the same amounts of therapeutic activity in your drug room for about ten cents on the dollar. If you don't believe me, figure it up as I have done for myself, out of some of the catalogues from some of the best drug houses. From the same houses you will find mixtures of stuff that although one might know to a reasonable certainty or be easily able to find out what to expect from a dose of one or two of the ingredients in the size given, only the good Lord himself could ever be able to figure out what effect or results to expect of the poly-pharmaceutical mixture and the only satisfaction one has, when he would come to use it, is that some brave and noble brother has tried it and found the size of dose that did not prove harmful, and you are advised to give the same dose.

In the next place I wish to say we all know there are many preparations made in which the drug used is mentioned; the amount of each in a dram, tablet or pill is put on the label, the number of drugs used are few and the result expected is quite plain if the house manufacturing the same is dependable. Concerning the use of these, I have no word of censure but I feel sure the time is rapidly coming to pass when simplicity in the use of drugs is going to be much more common, and even single remedies. If I am right in my belief, then we as a profession are advancing. We are gradually lifting ourselves from a guess to a certainty. We are using a well-chosen remedy to perform a certain definite work which it will do, generally, and the result is accomplished providing two things are true: first, that our diagnosis has been correct; second, that our drug is active or in other words has been obtained from a dependable source. For a good working, although pliable rule, it is well to have in mind drugs to meet certain indications and use them, keeping the number we use comparatively small and learn to use them well. This makes good doctors of us.

I believe the time is also rapidly coming when the average physician will look with pleasure to the coming of the representatives of physician's supply houses that offers him drugs and not compounded preparations. One other word I believe I ought to say in relation to the subject of self-drugging. This is a matter, as previously intimated, largely dependent upon the physician. The best way to stop it is to never tell a patient if possible what you are giving him. Keep the use and knowledge of drugs a matter of necessity to physicians, nurses and druggists and avoid curb-stone consultations. When asked your opinion of such and such a remedy, give indefinite reply, but above all *never* advise or prescribe proprietaries.

Case Reports

ECTOPIC GESTATION WITH RUPTURE INTO LARGE BOWEL.—REPORT OF CASE.

JAMES A. ATTRIDGE, M.D.

PORT HURON, MICH.

Miss. K., age 31, single; occupation housework, normal weight 135 pounds. Family history as obtainable has no special bearing on present condition of patient.

History.—Patient commenced to menstruate at age of 15, was regular, painless, 28 day variety, lasting three days, using three napkins daily. The early subjective symptoms began in January, 1913. Symptoms at that time were a feeling of languor, inaptitude for work, nausea, and vomiting at intervals, extending over a period of weeks. Up until May 6, 1913, her menstrual periods were regular but very scanty. On May 6, 1913, she was seized with cramps in right lower abdomen, and a profuse flow which followed alarmed her and she called her physician. The flow gradually ceased. On the same day in June she had a cramp with just a show of blood, and a feeling that she was smothering for lack of air. Since the slight show of blood in June she has not menstruated until the present time, December 15, 1913.

Symptoms.—On September 12th she had a sharp pain in the right lower abdomen. She was seen two days later by her physician, and treated at her home until November 15th when she was removed to the hospital. Since the cramp in September, and up until December 15th when I saw her in consultation, she gave a history of failing health with pain in the lower abdomen, and her chart showed that she had been and was still running a temperature of 99½ to 103. Her general appearance was that of marked anemia with prostration, such as is present with grave septic conditions of long duration. Her appetite was poor, bowels regular, pulse 120, temperature 100 F.; abdomen was enlarged up to the umbilicus, most marked on the right side. She was quite sensitive over the enlargement.

Examination.—Vaginal examination disclosed a mass in the right side of pelvis. The cervix was the only part of uterus which could be felt. It was very high and displaced to the right.

December 18th the X-Ray revealed what appeared to be fetal bones in the mass. That same day a tibia and other fetal tissue passed from her rectum. The urine proved negative, except for a marked indican reaction. Blood hemoglobin 20 per cent. Tallquist. Reds 1,590,000; whites 25,000, and marked Iodophilia.

Operation on December 19th.—Local anesthesia used until peritoneum was reached, when a very

small quantity of ether was given. The incision was made through the right rectus. When the mass was reached the products of decomposed fetus plus feces flowed freely from the wound. Examination of bones led to conclusion that the fetus had lived for a period of about seven months. When mass was removed a large fistula was found connecting the cavity and the large bowel near the sacral promontory. Drainage was established. Cultures from discharging wound showed colon bacillus and staphylococcus to be the predominating germs present.

Course.—Patient left hospital January 15th, 27

days after operation with wound and fistula practically healed. She has remained well since and has regained her normal weight and appearance.

The relative infrequency of cases of ectopic pregnancy rupturing into large bowel prompted me to report this case with appended history.

I wish to thank Dr. C. B. Stockwell of this city through whose courtesy this patient was referred.

Stewart Block.

PROPAGANDA FOR REFORM.

Robinol.—Robinol is a glycerophosphate mixture exploited by John Wyeth and Brother on the discarded theory that certain diseases are due to a loss of phosphorus from the body and that this phosphorus deficiency is best remedied by administration of glycerophosphates. There is no evidence that glycerophosphates when administered act differently than do inorganic phosphorus compounds. At all events, if phosphorus deficiency really occurs, it would be more rational to supply the needed phosphorus in the form of foods rich in phosphorus such as milk and eggs (*Jour. A.M.A.*, July 4, 1914, p. 49.)

Sevetol.—There was a time when physiologists thought that fats were absorbed into the blood in the form of a fine emulsion. It is now known that fat enters the blood after having been split into glycerol and fatty acid, the latter being, to a large extent, combined with alkalies in the form of soaps. Making use of the discarded theory Sevetol, put out by John Wyeth and Brother is presented to the profession with the claim that it is a very fine emulsion of fat and because of this is readily absorbed. While Wyeth and Brother would have physicians believe that Sevetol is readily absorbed and digested, it is evident that the amount of Sevetol which can be taken is limited not only by the power of assimilation but also by the power of digestion (*Jour. A.M.A.*, July 4, 1914, p. 49.)

Tooth Detergents.—While many tooth preparations are alkaline from the soap which they contain, it is probable that weakly acid preparations are to be preferred. As the antiseptics in tooth powders and washes do not remain in the oral cavity for any length of time, they cannot exert any beneficial antiseptic action. Antiseptics may even be harmful in that their periodical application may render the organisms which infect the mouth more hardy and vigorous (*Jour. A.M.A.*, July 4, 1914, p. 50.)

Dr. Jiroch Company, A Fraudulent Concern.—The federal authorities have declared the Dr. Jiroch Company, 533 S. Wabash Ave., Chicago fraudulent and denied it the use of the mails. This medical mail-order concern sent out a treatment which appears to have been the same no matter what the

symptoms reported by the victim. Examination of the four kinds of tablets sent out, in the A.M.A. Chemical Laboratory, showed these to contain ordinary tonic and laxative drugs (*Jour. A.M.A.*, July 11, 1914, p. 179.)

Lithium Salts in Uric Acid Diathesis.—There is no reliable clinical evidence that Lithium salts increase the excretion of uric acid by the kidneys, except as they exert the diuretic action. Experimental work has failed to show that lithium salts or the alkalies cause the absorption of deposited urates, gouty tophi, etc. The popular belief as to the action of lithia is founded on a misinterpretation of chemical facts. There is no reason why lithium salts should be expected to favor the solution of uric acid or urates in the tissues, the blood-serum or the urine (*Jour. A.M.A.*, July 11, 1914, p. 184.)

Strychnin and Caffein in Cardiovascular Disturbances.—Aided by a grant from the Council on Pharmacy and Chemistry, Dr. L. H. Newburgh has made a painstaking study of the action of strychnin and caffein on cardiovascular disturbances. He concludes that, since the blood-pressure is not low either in persons showing grave symptoms or pneumonia or of those dying from that disease, and since it has been proved that the vasomotor arcs are normal in animals after death from pneumonia, it is logical to conclude that the vasomotor mechanism is not impaired in pneumonia. Strychnin does not improve or augment the work of the heart in persons suffering from broken cardiac compensation. It could not be shown that either strychnin or caffein stimulated the cardiovascular apparatus in any of the conditions studied (*Jour. A.M.A.*, July 25, 1914, p. 311.)

Malt Nutrine.—This product of the Anheuser-Busch Brewing Association was declared misbranded by the government authorities because the label claimed that it was a highly concentrated extract of malt, which was untrue. Malt Nutrine was found to contain 1.6 per cent. alcohol and extravagant therapeutic claims were made for it (*Jour. A.M.A.*, June 20, 1914, p. 1981).

TRANSACTIONS

OF THE

Clinical Society of the University of Michigan

Stated Meeting, July 27, 1914

The President, R. BISHOP CANFIELD, M.D., in the Chair

Reported by REUBEN PETERSON, M.D., Secretary

Reading of Papers

CASE OF TABES DORSALIS WITH A MARKED FAMILY HISTORY OF THE DISEASE. OBSERVATIONS ON THE ETIOLOGY OF TABES AND TREATMENT OF THE ATAXIA.

CARL D. CAMP, M.D.

(From the Clinic for Diseases of the Nervous System, University of Michigan.)

Tabes dorsalis, or, as it is often called, locomotor ataxia, is one of the commonest forms of disease of the nervous system. This patient shows certain instructive points which I think may be of interest.

The first point to which I would draw attention is the family history of the patient. His father died, at sixty-three, of uremic poisoning, but having had the symptoms of locomotor ataxia. Two of the patient's paternal uncles had locomotor ataxia. The patient's mother died of pneumonia, with no symptoms of ataxia. One brother has locomotor ataxia and is now under treatment (Swift-Ellis treatment) in a nearby town. Another brother died of paresis. A sister of the patient has tabetic symptoms. Two other sisters of the patient had goiter. The maternal grandparents died of old age and rheumatism. Six members of this family, in three generations, had locomotor ataxia and one other had paresis. As you know, this disease is at present considered to be due to an infection with syphilis. It seems probable, however, that there is at least one other factor to cause the development of tabes or paresis. What this other factor is we do not know, various

theories having been advanced. The most popular theory at the present time is that there are different strains of spirochete, and that some of these strains especially affect the nervous system. In the case presented this evening it would seem improbable that three generations of the same family could derive a syphilitic infection from the same source. In fact, it also seems improbable that the same strain of spirochete should be present through three generations unless the disease was inherited. The patient shows no signs of inherited syphilis, such as Hutchinson teeth, etc. It would seem to me much more likely that in this family there is a hereditary vulnerability of the nervous system to syphilis and that, as the different members of the family became infected, they promptly developed symptoms in the nervous system. There is a recent theory that the secondary factor in the development of the parasyphilitic disease is some disturbance in the secretion of a ductless gland, particularly the thyroid. In this connection it is interesting to observe that two sisters of the patient had goiter and the patient's daughter has a goiter. The literature on the subject may be found in an article by Dr. Hans Barken¹ who quotes Stern as saying that the necessary triad for the development of the metasyphilitic diseases of the nervous system tabes and paresis is: a "dispositio paralyticans," a luetic infection and a pathologic functioning of certain ductless glands. Inasmuch as any special bodily constitution is probably the result of the action of the ductless glands, the triad is in reality a question of only two factors, according to this view. Maloney² calls

1. On the Simultaneous Occurrence and Interrelation of Basedow's Disease and Tabes. Boston Medical and Surgical Journal, June 18, 1914.

2. Determinants of Tabes. New York Medical Journal, June 20, 1914.

attention to the probable importance of the chemical affinities of the tissues in the distribution of syphilitic lesions, and believes that these are influenced by the ductless glands.

The second point in connection with this case is that the patient absolutely denies syphilitic infection. He says that he has never had any signs of it and that a doctor at one time told him that he could not have syphilis without knowing it. This is an erroneous impression which seems to be widely prevalent. This patient is unquestionably infected; he has a double plus Wassermann reaction; and the diagnosis of tabes has been confirmed by several observers. I have had an opportunity of examining a number of cases of tabes and paresis in patients who strongly denied any knowledge of syphilitic infection. Among this number were several physicians, who might be expected to know, if anyone would, if they had syphilis. I have no reason to doubt their honesty when they say that they had never had any eruption, sore or other signs but the positive clinical symptoms and the blood and spinal fluid examinations showed the presence of syphilis beyond question.

This patient began having his symptoms of tabes in 1896, when he had sharp, shooting pains in various parts of the body. He noticed a difficulty in walking about five years ago and these have been the most prominent symptoms. The patient also shows Argyll-Robertson pupils, marked Romberg sign, absent knee and Achilles jerks, and loss of sense of motion and position in the feet. Some time after he noticed the disturbance in walking, he also noticed a continuous, very severe pain in the anterior portion of the dorsum of the foot. His physician told him that this pain was due to his disease. A layman, however, advised him to get an artificial arch for his foot; this he did, and he claims that he was very much relieved of the pain, and that for a year or more his gait steadily improved, without other treatment. It is well known that a hypotonicity present in tabes dorsalis leads to a flattening of the arches of the feet. This has two very important results: It not infrequently causes, or increases, tabetic pains; and it also interferes greatly, in fact it may be one of the chief factors of the difficulty in walking. It is highly important, therefore, in the treatment of these cases that flat arches or the turning in of the ankle should be attended to as a part of the treatment.

DISCUSSION.

DR. UDO J. WILE: Dr. Camp has brought out two very interesting questions which are of exceeding interest not only to neurologists but also to syphilologists. The first is the possibility of their being special strains of the spirochete which have selective action for one or another of the systems. There is

more than clinical evidence at the present time to bear out that contention. There is of course an analogy in bacteriology. One knows, for instance, that streptococcus of one form will give rise to erysipelas; and that a streptococcus which differs not in its morphology but simply in its cultural reactions will give rise to impetigo contagiosa; a third variety of streptococcus may give rise to severe throat infection, with peritonitis. Although we do not as yet know every thing concerning the life history of the spirochete, it seems probable that it will be found that there are certain strains which are more virulent than others and have an especial affinity for certain systems. It is a common clinical fact that patients infected from the same source will develop syphilis of one particular type. The point that Dr. Camp made that the vulnerability of the nervous system must be considered, is extremely important. There is one report, for example, from the German literature, of four men infected from the same woman, three of them developing general paresis and one tabes. The occurrence of central nervous system syphilis in husband and wife not uncommonly occurs and also seems to bear out this theory.

The spirochete seen in the microscope in the living state also show various phenomena which tend to show that they are different regarding their individual resistance. Certain spirochetes, allowed to remain under the dark-field under favorable circumstances will outlive the other spirochetes in the same field. When certain chemical substances are placed in contact with these spirochetes, certain of the spirochetes will perish at once, others within ten minutes, while others are resistant to even three hours indicating an individual difference in virulence and viability. There not only seems to be a certain predilection for the nervous system, but the mucous membranes are involved in certain cases over other systems. The bones are very frequently the seat of the infection, to the exclusion of the other systems.

With regard to the belief that the ductless glands may play some role in the production of the so-called para-syphilitic infections, it is interesting to note that with the exception of the testis, the glands of internal secretion are seldom the seat of active syphilitic symptoms. Active syphilis of the hypophysis is almost unknown; syphilis of the thyroid is extremely rare; syphilis of the ovaries is exceptionally rare, thus it is an interesting paradox that the glands of internal secretion, if they have any bearing on the production of late nervous syphilis, seem to have a high resistance to the attacks of the spirochete themselves.

DR. C. D. CAMP: I had hoped that Dr. Wile would bear me out in one point that I tried to make, i. e. that many of these cases come to the clinic with tertiary syphilis having no knowledge of having had primary or secondary lesions. Of course it is amply proved that there are different strains of the spirochete, that the different strains affect different parts of the body quite regularly. But I think that Dr. Wile loses sight of one factor when he would explain such a family history as this one by an infection by a particular brand of spirochete. It is possible that two generations of the same family might be infected by the same strain but three generations seems improbable.

A CASE OF MARKED INDICANURIA IN A PSYCHOPATHIC PATIENT.

JAMES HOWARD AGNEW, M.D.

(From the Department of Internal Medicine, University of Michigan.)

The presence of coloring substances in the urine has attracted attention from the earliest times and both Hippocrates and Galen speak of a blue pigment in the urine. Many subsequent observers have noted this but it was not until 1857 that Schunk noted the constant presence of indican in the urine, named it and considered it identical, with vegetable indican. In 1863 Hoppe-Seyler distinguished between the indican of the urine and vegetable indican and in 1873 Jaffé noted the increased output of indican in intestinal obstruction and subsequently its source from the indol of the large intestine was established.

Indol is produced by the bacterial decomposition of proteins containing the tryptophan group and most physiological chemists doubt that it is formed in the body in any other way. Its chief source is therefore from the colon where such protein decomposition is going on, but it may be formed in a putrid abscess anywhere in the body. The indol is absorbed, carried to the liver where it is oxidized to indoxyl, combined with sulphuric acid and potassium to form potassium-indoxyl-sulphate or indican in which form it is excreted by the kidneys. Indican itself is colorless and it is when we treat the urine with acid and an oxidizing agent that indigo-blue is formed which is soluble in chloroform and is extracted in this way.

Indican is not present in the urine of the new born and often times not during the first few months of life. As to its significance the observation has been made by clinicians that persons in whom a very strong indican reaction can be obtained in the urine over a long period of time often suffer from nervous or dyspeptic disorders and it has been thought that there is some casual connection between the absorption of indol from the intestine and the development of functional nervous or nutritional derangements. However, this has never been placed upon a firm scientific basis. Herter (1) has shown that indol administered subcutaneously causes fatigue, headache, depression, twitching and sleeplessness; however, this was only with much larger doses than could possibly be absorbed in the same period of time. On the other hand many persons with these complaints have but traces of indican in the urine while many apparently healthy persons excrete large amounts. Herter (1) explains this by regarding the liver as a screen and says that if it does not remove indol promptly from the circulation symptoms will arise and it is this varying abil-

ity of the liver to conjugate indol that gives rise to the contradictory findings.

The relation of constipation to indicanuria is not constant and to produce indicanuria constipation must cause stagnation of masses of undigested proteins or hydrolyzed proteins in the large intestines.

The amount of indican excreted by a healthy individual on a mixed diet is variously given at from two to ten m. g. per twenty-four hours. A high protein diet will cause an increase in indican excretion and a protein free diet a diminution, although Moraczewski (2) found just the opposite. According to the theory advanced by Metchnikoff the growth of the *Bacillus Bulgaricus* hinders the growth of putrefactive bacteria in the intestine, thus preventing the formation of toxins which when absorbed cause arteriosclerotic changes and hence old age. If this be true there should be a diminished excretion of indican since the putrefactive fermentation would be lessened. The general findings have been that the feeding of *Bacillus Bulgaricus* has but little influence upon indican output but in going over the literature I was struck by the fact that there were very few careful quantitative studies and it was therefore thought desirable to make such quantitative studies upon this patient.

The patient was in the service of Dr. Barrett at the State Psychopathic Hospital to whom I am indebted for the opportunity of making this study. The case is not presented from the standpoint of the clinical features but simply as a case of marked indicanuria. It will be sufficient to state that he was confused, generally depressed with occasional periods of excitement and was considered at the time to have some form of a toxin psychosis.

The patient C. F. male, aged 59, was admitted to the hospital Nov. 14, 1912 and died May 13, 1913. The history is practically negative, the present trouble of loss of strength, depression and worry dating from some family trouble occurring ten months previous to admission. The patient has lost thirty pounds in weight, is emaciated, but physical and neurological examinations were practically negative. At this time the patient had an achlorhydria, the stool was negative and he was placed on a finely divided diet with hydrochloric acid after meals. The urine was negative except for the constant presence of a few granular casts until on January 26 it was noted that upon boiling the urine with nitric acid it became a deep purple color. At this time he was referred to the Medical Clinic where it was found that this was due to a large amount of indican. On Feb. 3, the patient had a phenolsulphonephthalein of 69 per cent. and the urea nitrogen was .32 g. per 100 cubic centimeters of blood.

Twenty-four hour samples of urine were ex-

aminated daily and the indican estimated according to the method of Ellinger (3) which is briefly as follows:

A measured sample of the twenty-four hour urine is precipitated with 20 per cent. lead acetate and a measured quantity of the filtrate treated with an equal amount of Obermayer's reagent. The indigo-blue formed is repeatedly extracted with chloroform, the chloroform distilled off, the residue dissolved in sulphuric acid and titrated with a potassium permanganate solution whose oxidizing factor has previously been determined against pure indigo-blue. The results of these determinations together with notes on the diet and medication are shown in the table.

The plan of the test was four days of observation without in any way modifying the patient's diet or medication, followed by four days of active purgation with calomel and salts and another period of four days observation. This was then followed by four days during which the protein intake was greatly reduced and another period of three days with the original soft diet. The hydrochloric acid was then discontinued and three tablets of *Bacillus Bulgaricus* (Parke, Davis & Co.) were given after each meal for three days. After the lapse of three days the tablets were given again over a period of three days and a week later a flask of sterilized milk in which *Bacillus Bulgaricus* was subsequently planted was given to the patient on two days. The bacteria coagulated the milk and were present in pure culture producing a thick curd of not unpleasant taste. Quantitative estimations of indican were then continued at intervals and six weeks later daily feeding with 200 cubic centimeters milk cultures of *Bacillus Bulgaricus* were resumed and continued to the end of the observation which was twelve days before death. Toward the latter part of the observation the indican was estimated upon the combined urine of two successive days and where this has been done it is indicated by brackets. In these instances the amount of indican for any given day can be approximated by prorating according to the quantity of urine passed on that day.

It should be noted that the patient had been taking fifteen drops of dilute hydrochloric acid after meals since his admission to the hospital but that for six weeks previous to beginning the quantitative estimations he had taken no meat, his diet consisting of cereals, milk, potato, toast, eggs, custard, fruit, butter, sugar and olive oil at times.

It is seen that during the three months the patient was under observation there were many marked and sudden variations in the quantity of indican excreted for which there is no adequate explanation. However, there was a grad-

ual lessening of the amount excreted and the last few examinations gave amounts of indican at the upper limits of normal but very much less than the amounts first found. When we attempt to draw conclusions from any particular form of medication or diet we find it is impossible.

During the preliminary period of observation there were marked variations followed by a fairly definite diminished indican excretion while the patient was being purged, which was in turn followed by the excretion of the largest amount observed at any one time—.3718 g. In going over the literature rather superficially I have not come upon a case reported where so large a quantity was excreted. Wang (4) reports a case of tuberculous peritonitis in which there was a daily indican output of .260 g.

Upon the day following the excretion of this very large quantity of indican, less than one-quarter of that amount was excreted, and following this there was a gradual but definite decrease in the indican excretion, not markedly influenced by the very low protein diet nor by the administration of *Bacillus Bulgaricus* tablets. The feeding with milk cultures of *Bacillus Bulgaricus* however appeared to have some effect for subsequently to that there was but one instance in which the indican excretion was more than 35 m. g. and when the milk cultures were given daily the indican excretion ranged from 10 to 20 m. g.

That large quantities of indican were not in this patient's urine previous to the first time it was noted seems assured as fifteen urine examinations had been made during the three preceding months with negative results except for casts. It may be that this was simply a wave of indicanuria which quickly reached its height and slowly subsided.

Herter (1) found that in dogs injections of *Bacillus Bulgaricus* into the intestine caused a diminution of the intensity of the indican reaction of the urine. Moraczewski (2) found no change of indican output in patients fed with *Bacillus Bulgaricus*, nor did he find any relation between the indol of the feces and the indican of the urine.

At autopsy there was found a thrombophlebitis of the right renal, common iliac and femoral veins, embolism and thrombosis of the pulmonary vessels, purulent pneumonia, emphysema, general sclerosis, atrophy and passive congestion, and a cyst of the pituitary body.

It is impossible to draw any definite conclusions as to the effect of diet or medication upon the indican output from a single case and this is reported simply as a case of marked indicanuria.

Date	Amt. Urine in c. c.	Amt. Indican in grams	Diet	Remarks
1-31-'13	1550	.1023	Soft	Specific gravity 1011. Few casts. No albumin. Bowels regular.
2- 1-'13	1800	.1121	Soft	Specific gravity 1008. Hydrochloric acid after meals.
2- 2-'13	1500	.0697	Soft	Specific gravity 1006. Hydrochloric acid after meals.
2- 3-'13	1770	.1404	Soft	Specific gravity 1009. Hydrochloric acid after meals. Received Calomel grs. 2 and epsom salts, ounces 1.
2- 4-'13	840	.0313	Soft	Specific gravity 1017. Hydrochloric acid after meals. Received one ounce salts.
2- 5-'13	900	.0356	Soft	Specific gravity 1013. Hydrochloric acid after meals. Received one ounce salts.
2- 6-'13	1150	.0622	Soft	Specific gravity 1016. Hydrochloric acid after meals. Received one ounce salts.
2- 7-'13	1800	.0848	Soft	Specific gravity 1014. Hydrochloric acid after meals.
2- 8-'13	1325	.2088	Soft	Specific gravity 1011. Hydrochloric acid after meals, Stool 1.
2- 9-'13	1050	.3718	Soft	Specific gravity 1917. Stool, 1.
2-10-'13	1000	.0926	Soft	Specific gravity 1014.
2-11-'13	900	.0895	Soft	Hydrochloric acid after meals. Stool, 1.
2-12-'13	1400	.0724	Very low protein	Hydrochloric acid after meals. Stool, 1.
2-13-'13	1340	.0554	Very low protein	Hydrochloric acid after meals. Stool, 1.
2-14-'13	1440	.0981	Very low protein	Hy Hydrochloric acid after meals.
2-15-'13	700	.0705	Very low protein	Hydrochloric acid after meals. Very active.
2-16-'13	600	.0471	Light	Hydrochloric acid after meals. Stool 1. Not a 24 hour specimen.
2-17-'13	610	.0473	Light	Hydrochloric acid after meals. Only a 21 hour specimen.
2-18-'13	530	.0636	Soft	Stool 1.
2-19-'13	540	.0490	Soft	Received nine tablets B. Bulgaricus.
2-20-'14	975	.0603	Soft	Received nine tablets B. Bulgaricus. One stool.
2-21-'13	425	.0525	Soft	Received nine tablets B. Bulgaricus. One stool, not a 24 hour specimen.
2-22-'13			Soft	Much disturbed. Unable to collect urine until 2-25-'13.
2-25-'13	1000	.0458	Soft	Very confused.
2-26-'13	800	.0477	Soft	
2-27-'13	420	.0539	Soft	Received nine tablets B. Bulgaricus. Complete 24 hour sample.
2-28-'13	480	.0509	Soft	Received nine tablets B. Bulgaricus. Complete 24 hour sample.
3- 1-'13	760	.0931	Soft	Received 7 tablets B. Bulgaricus.
3- 2-'13	620			
3- 3-'13	1190	.1157	Soft	
3- 4-'13	720			
3- 5-'13	430	.1085	Soft	Not a 24 hour sample.
3- 6-'13	980			
3- 7-'13			Soft	Urine lost.
3- 8-'13	630	.0992	Soft	Not a 24 hour sample.
3- 9-'13	560			
3-10-'13	975	.0760	Soft	Not a 24 hour sample. Milk culture B. Bulgaricus
3-11-'13	825			
3-12-'13			Soft	Milk culture, B. Bulgaricus.
3-13-'13	370	.0176	Soft	Complete 24 hour sample. Marked twitching.
3-14-'13	550	.0622	Soft	
3-15-'13	900			

Date	Amt. Urine in c. c.	Amt. Indican in grams	Diet	Remarks
4-12-'13	600	.0706	Soft	Has grown much weaker. Is taking no Hydrochloric acid. 27 hour sample.
4-13-'13	440			
4-19-'13	610	.0571	Soft	
4-21-'13	300	.0357	Soft	
4-22-'13			Soft	Has grown weaker. Marked twitching. Test for Indican in blood negative.
4-26-'13			Soft	Milk culture B. Bulgaricus.
4-27-'13	390	.0180	Soft	Milk culture B. Bulgaricus. 14 hour specimen of urine.
4-28-'13	500	.0182	Soft	Milk culture B. Bulgaricus. 22 hour specimen.
4-29-'13	920	.0185	Soft	Milk culture B. Bulgaricus.
4-30-'13	380	.0107	Soft	Milk culture B. Bulgaricus. 24 hour specimen.
5- 1-'13	440	.0202	Soft	Milk culture B. Bulgaricus.

DISCUSSION.

DR. C. D. CAMP: This case is very interesting from the clinical standpoint. It is possible, I think, that many of the symptoms that the man showed were to be attributed to the cyst of the pituitary body which was unsuspected during life but was a very prominent feature in the autopsy findings. Whether disturbance of the pituitary body could have caused the indicanuria, it seems to me, is a very interesting question which might be further gone into.

DR. JAMES H. AGNEW: In regard to Dr. Camp's remarks, I am not so familiar with the clinical aspects of the case. I was interested particularly from the standpoint of the indicanuria. It has been very definitely proven that thyroid feeding will cause an increase in the indican output but I have seen nothing regarding the effects of pituitary extracts upon indican output.

It seems rather strange, however, if the pituitary body had anything to do with this, that he should have such a large excretion and then such a sudden falling off. I am inclined to believe that the feeding with *Bacillus Bulgaricus* had nothing to do with this and that it would have fallen off without medication. Furthermore, it would seem that from the fifteen previous urine examinations, if there had been any marked indicanuria, it would have been noted. I believe a very practical point is that a single sample of urine tested for indican is practically valueless and that a twenty-four hour specimen should be used.

DR. R. BISHOP CANFIELD: Do you suppose that approaching death had any thing to do with it?

DR. JAMES H. AGNEW: No; in approaching death with cardiac decompensation, the test for indican is unchanged. In uremia there is an increased excretion of indican and particularly indican in the blood.

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A CASE OF HYDROCEPHALUS.

ALBERT H. BEIFELD, M.D.

(From the Department of Pediatrics, University of Michigan.)

This baby was brought to the Pediatric Service yesterday and is shown here this evening merely to demonstrate the size of the head. The baby is 21 months old, normal birth and normal family history. While the child's head was believed to be rather large at birth, the real enlargement was not noted until after six weeks and from that time until now a progressive enlargement has been observed. There is nothing to account for this increase in the size of the head, although it is not uninteresting to note that in the first month of the infant's life it was exposed to tuberculosis, the patient being the landlady in the house where the child lived.

The circumference of the skull is 64 cm.; the normal measurements at this age, 21 months, being about 40 cm. It is interesting to note the marked degree of ossification of the skull. In most cases of hydrocephalus one expects a separation of the sutures and gaping of the fontanelles. In this case, however, the posterior fontanelle is almost closed, the anterior fontanelle measuring 9 cm. and the sutures firmly united. There is the usual pushing down of the eye-ball due to the forward and downward pressure upon the orbit. The reflexes are so markedly increased that the slightest touch will produce clonus. Lumbar puncture has not been done as we are having an apparatus made for the purpose of trans-illumination. With this we hope to observe the effect of puncture on the accumulation of fluid.

DISCUSSION.

DR. D. M. COWIE: A great many of these cases come to the children's clinic. The problem is how to treat them. If lues is an etiologic factor it is possible that treatment for this condition may be of benefit. Surgical interference has brought about

varying results. In not a few cases of hydrocephalus operation has proved a distinct benefit. The principle involved in the surgical care of these cases is drainage. This may be effected in several ways. If a case can be proved to be of the external type, drainage into the soft tissues of the head may suffice. Dr. de Nancrede operated one such case for me in this way. There was distinct drainage around the filagree of silver wire for a while. A second operation was advised but the patient passed from under our observation.

In the internal variety, drainage of the ventricles into the sinus or cisterna magnum has given encouraging results in several cases recorded in the literature. Simple tapping of the ventricles through the corpus callosum has been followed by relief in a few cases. A more complicated and extensive operation is that of drainage of the cerebro spinal fluid into the abdomen. This operation has to be done in two or three stages and is very difficult.

While the results following such operations on the whole have not been very encouraging I, nevertheless, believe that when we have such cases in private or hospital practices we should encourage operative measures. With improvement in operative methods and technic, as well as in methods of diagnosis it is not at all improbable that sooner or later something will be discovered to help certain groups of cases. There is certainly no medical treatment of any avail.

DR. BEFIELD: In the shortness of time we have not had a report of the Wassermann. There is a belief that a large number of these cases are syphilitic. The child was treated with the inevitable protoiodid pills for quite a long time.

DR. R. BISHOP CANFIELD: My experience in surgical treatment of these cases is limited to one case. In this case the patient's basal cistern was opened and drainage secured by means of a knotted silk ligature one end of which was passed through the dura and the other end carried downward under the deep neck muscle. We secured drainage for as long as the patient remained under observation and there were definite signs of improvement. The downward position of the eyes was somewhat improved. The child was able to feed itself solid food. It gained in intelligence. It developed several new words in its vocabulary, while under observation. It recognized its relatives and called them by some baby name, giving the relative always the same name. It showed therefore, signs of improvement. It seems to me that the greatest point is an early diagnosis, a diagnosis before the head has changed in its size so tremendously, and some definite drainage introduced before the ventricles have become so permanently dilated and the cortex so thin that there is no possibility of the child developing any mentality. It appears to me that with an early diagnosis, an early operation might be of service. There were one or two successful cases in which a gold tube has been introduced, one end into the torcular and the other end through the subdural space. In this way the pressure in the subdural space may be reduced to that of the torcular. The operation has been done a couple of times with some improvement.

A CASE REPORT.

HAROLD I. LILLIE, A.B., M.D.

(From the Otolaryngology Clinic, University of Michigan.)

The case I wish to report tonight is that of a young man, twenty-three years of age, who entered the Neurological clinic three years ago,

1910, complaining of inability to open his mouth or chew his food and of weakness in the arms and legs.

Family History.—Father has asthma, the mother is a very nervous individual, the maternal grandmother is eighty years of age and has senile dementia.

The previous history shows the patient to have had two rather severe accidents, one supposed to have resulted in cerebral concussion, from which he recovered completely. He denies venereal infection.

The present trouble started six weeks previously with pains in hips and legs, followed by muscular weakness becoming so pronounced that he was unable to walk. Pain and weakness developed in upper extremities.

Neurological examination, 1910, Dr. Camp: No absolute paralysis, no pain in muscle masses. Movements painful. Tactile sensations not changed. No pain with pressure over nerve trunks. All muscles react to faradic current. Tendon reflexes prompt. Anesthesia of conjunctiva. Physical examination, negative; urine, negative.

He was treated with static spark and three weeks later discharged, very much improved, and remained so.

His second admission was in December 1913, when he complained about stiffness of the back and pains from hips to knees. No ataxia; no trouble with sight or hearing; no vomiting.

Neurological examination, Dr. Camp: Conjunctiva anesthetic. No paralysis, atrophy or disturbance of sensation. There was a slight rigidity of spine, but no deformity. The rigidity was not absolute, however. This he says has developed so slowly he does not know when it could have started. It is variable. It does not affect the cervical region. He puts both arms above his head and holds them there with equal strength. Joints are negative. Wassermann, negative; urine, negative. Physical examination, negative.

The patient said that he had consulted a physician in Chicago for this same trouble and that after a careful examination, both physical and X-Ray, he was told he had arthritis deformans. His consultant recommended that his tonsils be enucleated.

Examination of the patient in Otology clinic revealed septic tonsils with enlargement of the anterior cervical glands. History showed repeated attacks of sore throat.

X-Ray examinations of spinal column, I will quote: "Bodies of the second, third, fourth and fifth lumbar well shown. Fifth is rather hazy and indistinct from superposition upon sacrum. There is no lippling, no opacities, no dislodgement or other evidence of disease of the centra. The posterior artifications are also normal.

We find no evidence of disease in this spine."

The patient was then transferred to the Otology clinic for tonsil enucleation, having been told his trouble would disappear if his tonsils were removed. The operation was performed under cocain anesthesia with very great difficulty. Although the patient said he experienced no pain, the instrument caused him to gag and cough and he would not keep his mouth open, despite the careful instructions. There was no post operative bleeding, and the next day he complained little of sore throat. On the third and fourth day he noticed his back was not so stiff. He apparently was delighted and was noticed in the ward bending over, in all directions. The movement became normal and patient was discharged.

This patient is interesting (1) because he is a type of hysterical patient which responds to well directed treatment. (2) Had he followed the advice of his Chicago consultant, the result would no doubt have been reported as a case of arthritis deformans cured by tonsil enucleation.

DISCUSSION.

DR. C. D. CAMP: I remember this patient very well because my attention was called to him recently. When I first saw him in 1910, the case showed nothing of special interest. As I remember, it was a case of hysterical paralysis of one or both arms. The condition was treated purely symptomatically, that is, by suggestion. The symptoms were so completely relieved that the patient left the hospital because he felt well. The patient returned some time later, three years, I think, and said that a diagnosis of rheumatoid arthritis of the spine had been made. An examination shortly after admission to the hospital pointed conclusively to the fact that the spinal trouble was also hysterical and that opinion was confirmed by his X-Ray examination. He was convinced that the spinal trouble would yield to a tonsilectomy and, inasmuch as he probably needed a tonsilectomy anyway, that seemed the most servicable way to treat him and he improved very rapidly after the tonsilectomy. Three or four days after, he showed me that he could touch the floor with his fingers without bending his knees. I think the point is that literature should be judged rather critically when we read accounts of minor operations being beneficial in arthritis or other obscure complaints.

A REPORT FROM THE CLINIC OF OPHTHALMIC SURGERY OF A SERIES OF OPHTHALMOSCOPIC STUDIES OF THE FUNDUS IN CASES OF NEPHRITIS.

DR. GEORGE SLOCUM.

Instructor in Ophthalmology, University of Michigan.

Long before the discovery of the ophthalmoscope it was known that nephritis is often accompanied by visual disturbances, and as early as 1836 John Bright noticed that such disturbances are sometimes the earliest observed symptoms. The pathological changes in the

retina were described postmortum by Turk in 1850 and by Virchow in 1855.

When in 1851 Helmholtz invented the ophthalmoscope, a new world of investigation was opened for the study of pathological changes in the interior of the eye. Before the time of Helmholtz's discovery many intraocular diseases remained more or less of a mystery, the changes produced by most of the intraocular diseases causing blindness being known only through histo-pathological study. With the discovery of the ophthalmoscope, the interior of the eye in all its living physiological activity was revealed and eager investigators commenced the study of the interior of the eye. The first published ophthalmoscopic studies of the retinal changes of nephritis were those of Heyman in 1856 and Liebreich in 1859. It was not a long time before the study of the fundus so fascinated a number of able men, that a great wealth of material was accumulated, and descriptions of the most careful and painstaking series of observations have constantly been added until it seems next to impossible to discover any conditions which have not been ably described by earlier observers. While the present series of observations were conducted with a full knowledge that the conditions studied have already been described in the minutest detail, accompanied in many instances by the most beautifully executed colored drawings and paintings, the study has been made in the hope of throwing more light upon the relation between the different types of nephritis and the associated ophthalmoscopic picture. It has often been stated and many believe that the type of ocular inflammation or degenerative process seen in certain general diseases varies with the type of histologic structure involved in the general process; for instance in lues when collagenous structures are invaded in the eye, is not the same class of tissues involved within the cranium; when the vascular structures are involved, may we not look for an intracranial involvement of the choroid plexus or pial tissue; or, in cases of neuroretinitis or papillitis where the brunt of the attack seems to be centered in the nervous structures, may we not be able to find that the changes are similar to those which are found in the interior of the brain or in the spinal cord? It has also often been observed that a relation seems to exist between the type of fundus changes found and the type of systemic condition having an etiological relation, as for instance in cases of nephritis. It was with the purpose of studying these relations in this class of cases that the present series of observations was undertaken. The main questions considered are first to what extent do the exudative and hemorrhagic retinal changes seen in the acute forms of nephritis correspond to the pathological changes found

in the kidneys? Second: Is there a constant or characteristic relation between the retinitis associated with parenchymatous nephritis and the pathological changes in the kidneys? Third: Can a characteristic relation be established between the vascular changes almost invariably accompanying the chronic interstitial type of nephritis and the vascular changes frequently seen in the retina? Fourth: What other relation may exist between the fundus changes and the pathological manifestations?

The familiar classical picture of albuminuric retinitis presents a glistening white change in the macular region having a radiating spoke like a star shaped arrangement, often associated with hemorrhages of varying types in the neighborhood of the temporal vessels or in the macular region. This type of retinitis is present in the late stages of about 30 to 50 per cent. of contracted kidneys. It is rare indeed that any condition of the retina develops having the typical features of this form of retinitis, that cannot be traced directly to kidney disease or hypertension. Such macular changes are degenerative in character, probably due to atrophic changes in the macula following the macular edema of an earlier stage. When we recall the radiating anatomical arrangement of the retinal elements in the macular area in Henle's horizontal layer, the fact that an edema, an exudate, hemorrhagic or inflammatory changes in this region take on a radiating character, as following the lines of least resistance is at once satisfactorily explained. Later atrophic changes would cause the radiating pathological process to become conspicuously white as well as star like in arrangement. There are a certain number of albuminuric retinitis cases which are characterized by small white dots and spots in the macular region not having a typical radiating arrangement. To determine, if possible, the type of vascular change present in these two conditions was one of the objects of this study.

Hemorrhages may be present sooner or later in practically all cases of albuminuric retinitis. Indeed, some of the permanent changes found in the retina are due to the failure of absorption of extravasated blood with later organization of fibrin and blood pigment changes. The appearance of the fibrin is at first fluffy, that is, immediately after absorption of migration of the blood pigment, resembling an inflammatory exudate; gradually changing through successive stages, finally flattened atrophic patches appear, remaining bordered, perhaps, by irregular patches or degenerated blood pigment which cannot be distinguished ophthalmoscopically from retinal pigment. Hemorrhagic changes, however, are present in many forms of retinitis not dependent upon kidney disease. That hemorrhages should be more likely to occur in cases of the interstitial type one might expect

when one remembers that vascular changes are such a prominent feature in the pathology of interstitial nephritis. The type of hemorrhages, other things being equal, would depend somewhat upon the type of vessels involved. When the fine capillaries are affected, associated hemorrhages in the retina would be more likely to be present in the outer vascular plexus of the retina. Such hemorrhages would usually be small, rounded in character, and because of the histology of the middle layers of the retina, would have a tendency to extend vertically rather than horizontally. The resulting hyaline or fatty changes lead to marked vertical changes associated with cystoid spaces filled with hyaline or fibrous material.¹ In the others where the small arterioles are involved, the hemorrhages would become prominent in the inner vascular plexus in the nerve fiber layer, and would follow the line of least resistance along the interfascicular clefts in the inner fiber layer and therefore assume a flame like shape. Still other hemorrhages and exudates occur between the lamina vitrea choroida and the retina producing small local detachments. The larger hemorrhages are usually sub hyaloid, that is between the retina and the vitreous. Inasmuch as such hemorrhages are sometimes seen in cases presenting no discoverable systemic disturbance their diagnostic importance is not as well established.

Neuroretinitis, papillitis, or even choked disc are sometimes seen in kidney disease, more especially perhaps in acute types such as the acute nephritis of scarlet fever or in the nephritis of pregnancy in which the changes are often quite characteristic. In the more acute types large exudative spots of considerable size may appear, hemorrhages are relatively fewer, the retina is deeply edematous, becomes muddy, is locally detached, loses its transparency, and fine granular opacities are often present in the media. In the series of cases examined, the acute type is present in two cases only. Retinal changes associated with nephritis may be classified as follows: 1. Vascular changes; (a) Increased arterial tension as shown by arteriovenous compression, the veins being compressed by the more rigid overlying artery, resulting in local dilation of the vein distal to the compression. (b) Fine tortuosities of the arteries and veins, corkscrew vessels particularly in the macular region with or without small hemorrhages. (c) Degeneration of the walls of the arteries as shown by the broadening of the arterial reflex stripe, in endarteritis or thickening of the perivascular lymph sheathes, as seen in periarteritis, changes which often advance to the extent of the formation of the so-called silver wire vessels in which

1. Parson's Pathology P. 1298.

a portion of the blood stream is entirely obscured by the opaque degenerated vessel wall. 2. Neuro-retinitis, and optic neuritis with slight detachment of the retina in the neighborhood of the disc may be due more or less directly to toxic substances which have accumulated in the system because of imperfect elimination, or perhaps in some cases of choked disc to an increase of intracranial pressure. 3. Hemorrhagic retinitis, especially if bilateral and accompanied by exudative changes or edema. 4. Small white spots in the retina near the disc or in the macular region especially when bilateral and accompanied by other retinal changes. 5. Punctate retinitis in the macular region bilateral, especially when associated with edema or hemorrhages. 6. Glistening white spots in the macular region or between the macula and the disc having a radiating arrangement centered in the macula, a late change associated with chronic types. 7. Late changes such as secondary optic atrophy or retinal atrophy following a marked neuroretinitis or papillitis in one of the acute exanthemata or in the albuminuric retinitis seen in pregnancy.

8. Choroidal changes dependent upon vascular changes similar to those which take place in the retinal vessels associated with hemorrhages in the choroid which are sometimes present in albuminuric retinitis.

Vision is impaired in albuminuric retinitis in proportion to the size of area, and according to the locality involved in the pathological process. As would be expected, exudative and degenerative types in the macular region give the greatest amount of immediate impairment; inflammatory types may cause an acute impairment of vision which in severe cases becomes more marked as atrophic changes supervene.

I have divided the cases presented in this report into five classes:

- a. Chronic Interstitial Nephritis.
- b. Chronic Nephritis.
- c. Hypertension.
- d. Acute Nephritis.
- e. Miscellaneous.

They are tabulated below grouping the symptoms to facilitate comparison of the various features.

SERIES A.

Chronic Interstitial Nephritis.	Sex	Age	Vision		Ocular Findings.
			O D	O S	
1. C. G. 6-12-12. Medical Diagnosis: Chronic interstitial nephritis. Hypertension. Arterial sclerosis. Heart enlarged. Urine: Trace albumen, fine granular casts, B. P. 200 to 240. Symptoms: Headache, dyspnea; occasional edema of legs.	M	75	e. f.	e. f.	O. D. Fusiform venous dilations; many rounded flame shaped hemorrhages, one large subhyaloid hemorrhage. Marked edema of the disc and retina; retinal detachment down and temporally. Choroidal vessels sclerosed O. S. Large detachment lower third of retina; exudates and macular changes. Lenses cataractous.
2. C. H. 10-22-12. Medical Diagnosis: Advanced chronic interstitial nephritis. Heart enlarged and hypertrophied. Urine: Large amount of albumen, hyaline and granular casts. B. P. 195 to 220. Symptoms: Extreme dyspnea on exertion; some edema of legs.	M	44	5/4	5/4	O. D. Periarteritis; endarteritis; arteries small; veins irregular in caliber. Retina edematous; subretinal exudates; hemorrhages and exudates in retina. Edema of macula. O. S. Silver wire artery; arteriovenous compression dilation. Hemorrhages in the retina rounded and flame shaped.
3. C. J. 12-2-12. Medical Diagnosis: Chronic interstitial nephritis. Uremia: Dilated heart; hydrothorax; radial and temporal vessels sclerosed. Urine: Large amount albumen, granular and hyaline casts. B. P. 150-190. Symptoms: Cheyne-Stokes respiration; dyspnea.	M	48	5/10	5/6	O. D. Marked endarteritis; arteriovenous compression dilation. Marked retinal edema; flame shaped hemorrhages; exudative changes. Minute exudative spots in the macula. O. S. Rounded hemorrhages, glistening white spots, a few exudative changes and slight pigment change in macula. Tortuosities of macular vessels; one macular vessel silver wire; O. S. same as in O. D.
4. L. H. 12-13-12. Medical Diagnosis: Interstitial nephritis chronic, hypertension. Urine: Albumen, large amount, granular casts. B. P. 205 to 175. Heart slightly enlarged. Symptoms: Dyspnea, headaches, nausea vomiting, dizziness, hurried vision.	F	43	6/6	6/6	O. D. Endarteritis; arteriovenous compression; veins tortuous. Macula edematous Retina edematous. O. S. Disc edematous, otherwise the same as O. D.
5. B. J. 12-27-12. Medical Diagnosis: Mental derangement due to vascular change. Urine: Large amount albumen, granular casts. B. P. 210 to 250. Radials sclerotic. Mental confusion.	M	?	4/20	4/20	O. D. Discs edematous. Arteries contracted; endarteritis Choroid atrophic. No exudate, hemorrhages or atrophic changes.
6. C. D. 3-21-14. Medical Diagnosis: Chronic interstitial nephritis. Arterial sclerosis; myocardial insufficiency. Heart enlarged. Urine: No albumen, a few hyaline casts. B. P. 195 to 155. Symptoms: Headaches, nausea and vomiting, dyspnea, edema of hands and under eyes.	M	53	5/7	5/10	O. D. Periarteritis; endarteritis; arteriovenous compression dilation. One or two small hemorrhages near the macula. Two small exudates in retina; retina edematous. O. S. Much the same as O. D. also macula edematous but no exudates or hemorrhages.

SERIES A—Concluded.

Chronic Interstitial Nephritis.	Sex	Age	Vision		Ocular Findings.
			O D	O S	
7. E. J. 4-9-13. Medical Diagnosis: Chronic interstitial nephritis. Tachycardia; uremia; heart enlarged; systolic murmurs radials sclerosed. Urine: Albumen, small amount and not always present, few casts; phenosulphon test, elimination slow. B. P. 245 to 225, Hgb. 60 per cent. Urea in blood 2.02? Wassermann negative. Symptoms: Dizziness; occasional headache; dyspnea on exertion; swelling of ankles.	M	45	5/10	5/4	O. D. Disc edematous and congested. Marked endarteritis; slight perarteritis. Retina edematous especially toward the macula; rounded hemorrhages; flame shaped hemorrhages; atrophic retinal changes, white patches, many glistening exudative changes in the retina, small and scattered. Fine white dots and points in macula; exudates along walls of vessels. O. S. Disc edematous and congested. Perarteritis; marked endarteritis; silver wire arteries; vessels tortuous; arteriovenous compression dilation. Atrophic retinal changes, less marked than in O. D. Exudates less numerous but arterial changes more advanced.
8. E. N. 4-21-14. Medical Diagnosis: Chronic hypertension; nephritis. Urine: Albumen, faint trace, no casts; phenosulphon elimination rapid. B. P. 242 to 195 W. B. C. 11, 370 R. B. C. 4,690,000, blood urea .44 g. per liter. Symptoms: Headache; poor vision; pain in the heart.	F	47	5/6	5/15	O. D. Marked arteriovenous compression. Retinal edema. Central choroidal changes. O. S. Nerve head edematous; marked arteriovenous compression; retina edematous; some exudative spots above the macula. A few glistening white spots between the macula and the disc, central choroidal changes.
9. W. McG. 4-24-13. Medical Diagnosis: Arterial sclerosis; interstitial nephritis; hypertension; heart enlarged; radial thickened. Urine: No albumen, a few granular casts; phenosulphon elimination good. B. P. 170. Symptoms: Severe precordial pain.	M	54	5/4	5/4	O. D. Disc congested and edematous. Veins engorged; marked arteriovenous compression dilation; arteries tortuous, irregular in caliber and show endarteritis. Retina edematous. Macula edematous. O. S. Endarteritis more marked, otherwise practically same.
10. J. L. 6-9-13. Medical Diagnosis: Chronic interstitial nephritis, hypertension, cardiac insufficiency. Heart slightly enlarged, faint systolic murmur. Urine: Albumen, moderate amount, no casts; phenosulphon, elimination very slow. B. P. 212 to 180. Symptoms: Dyspnea on exertion.	M	55	6/12	6/30	O. D. Nerve head edematous. Several whitish areas of infiltration of the retina near disc border temporally. Arteries contracted. Retina edematous. Up and nasally from the disc, hemorrhages and whitish areas of infiltration. Macula edematous. O. S. Disc edematous. Arteries contracted. Several fine hemorrhages and small deposits (old hemorrhages) in temporal retina.
11. J. S. R. 12-9-13. Medical Diagnosis. Chronic interstitial nephritis; chronic hypertension. Heart slightly enlarged; radial thickened; extra systoles. Urine: Definite trace albumen, many hyaline and granular casts; phenosulphon, elimination slow. B. P. 190 to 155. Blood urea .75 gm. per liter. Symptoms: Headaches, spots before eyes, short of breath, edema of feet.	M	65	5/5	5/5	O. D. Disc edematous. Arteries irregular in caliber; endarteritis; partial silver wire artery; marked arteriovenous compression dilation. Retina edematous. O. S. Disc edematous. Arterial changes same as O. D. only more general and advanced; arteriovenous compression dilation more marked. One small linear hemorrhage above disc. Corkscrew macular vessels; macula edematous.
12. C. W. B. 6-24-13. Medical Diagnosis: General arterial sclerosis; chronic nephritis, secondary. Heart slightly enlarged; systolic murmur; radials sclerotic. Urine: Definite trace albumen; many hyaline and granular casts. B. P. 190 to 160. Hgb. 62 per cent. Symptoms: Principally those of chronic gastritis.	M	67	3/60	5/60	O. D. Lenticular opacities. Disc edematous. Endarteritis; veins irregular in caliber. Retina edematous. O. S. Fine lenticular opacities; a few vitreous opacities. Disc edematous. Endarteritis; vessels irregular in caliber. Retina and macula edematous. One small silver wire artery nasally; arteriovenous compression dilation.
13. J. V. 8-23-13. Referred to Medical clinic; diagnosis chronic nephritis, arterial sclerosis, mitral regurgitation. Greatly enlarged heart, harsh systolic murmur. Urine: Albumen negative at first, later trace hyaline casts, bacteria. B. P. 200 to 170 Wassermann negative. Symptoms: Poor vision; swelling under eyelids; dyspnea on exertion.	M	74 later.	1/60 1/60	6/60 3/60	O. D. Slight lenticular opacity. Perlar-teritis; veins irregular in caliber; arterio-venous compression dilation. Very many flame shaped, linear and rounded hemorrhages generally small in size in both retina and macula. Exudative changes (old hemor-rhages?); choroidal changes in the retina and the macula. Retinal edema; slight re-tinal detachment. Some glistening white spots in the macula. O. S. Corneal opac-ities. Fundus details not clearly seen. Some peripheral pigmentary retinal changes. Hem-orrhages and exudates in the macula.
14. T. B. 9-25-13. Medical Diagnosis. Chronic interstitial nephritis; hypertension; hypertrophied heart, vessels sclerotic. Urine: Large amount of albumen with hyaline and granular casts; phenosulphon elimination slow. B. P. 195 to 180 W. B. C. 8,500. R. B. C. 3,730,000. Blood urea .89 gm. per liter. Wassermann negative. Symptoms: Failing vision; headaches; dyspnea on exertion; edema of the ankles.	M	43	5/20	5/30	O. D. Disc swollen and edematous, con-gested. Veins engorged; arteries small; en-darteritis. Retina congested, edematous and contains several hemorrhages and exu-dates. Hemorrhages in the macula typical; partial radiating glistening white macular star. O. S. Disc hyperemic, swollen 1½ to 2 diopters. Endarteritis. Many hemor-rhages. Many minute white spots about the disc. Macular hemorrhage; glistening white macular spots, slightly radiating.

SERIES A—Continued.

Chronic Interstitial Nephritis.	Sex	Age	Vision O D O S		Ocular Findings.
<p>15. F. L. 12-3-13. Medical Diagnosis: Chronic interstitial nephritis; hypertension; arterial sclerosis. Heart enlarged, systolic murmurs. Urine: Considerable amount albumen with hyaline and granular casts; phenosulphon elimination poor. B. P. 270 to 220. Urea .72 gm. per liter. Symptoms: Vomiting in A. M.; dyspnea on exertion; W. B. C. 7,750, R. B. C. 4,810,000.</p>	M	50	5/12	5/15	O. D. Disc swollen 4 diopters, swelling extending some distance about the disc. Vessels are tortuous; endarteritis; periarteritis; arteriovenous compression. Many hemorrhages and exudative spots. O. S. Practically the same as O. D. in every respect.
<p>16. W. L. 1-29-14. Medical Diagnosis: Chronic interstitial nephritis; hypertension. Heart enlarged, systolic murmur; mitral insufficiency. Urine: Considerable albumen with granular casts. B. P. 200 to 225. Blood urea .82 gm. per liter. W. B. C. 5,100, R. B. C. 4,630,000. Symptoms: Dizziness, loss of consciousness, dyspnea on exertion, edema of the ankles.</p>	M	63	5/6	5/6	O. D. Disc swollen 2 diopters. Arteries irregular in caliber; endarteritis; arteries contracted; arteriovenous compression. Veins edematous. Macular vessels tortuous; macula has granular changes. O. S. Disc edematous. Vascular condition the same as O. D.

SERIES B.

Chronic Nephritis.	Sex	Age	O D O S Vision		Ocular Findings.
<p>1. G. M. 12-12-12. Medical Diagnosis: Chronic nephritis; secondary contracted kidney, interstitial type. Heart enlarged. Urine: Albumen, large amount; phenosulphon. elimination slow. B. P. 250 to 216. Symptoms: Headaches; short of breath; vomiting; edema lids and legs.</p>	F	26	5/7 $\frac{2}{3}$	5/7 $\frac{1}{2}$	O. D. Nerve head swollen 4 diopters. Hemorrhages about the disc. Marked periarteritis; arteriovenous compression dilation. Retina edematous in which tortuous veins are embedded; veins engorged. Macular vessels cork screw like; beginning star shaped figure. O. S. Condition practically same as O. D., swelling same.
<p>2. W. H. M. 1-16-13. Medical Diagnosis: Subacute parenchymatous nephritis. Heart enlarged. Urine: Large amount albumen, granular casts; phenosulphon. rather rapid elimination. B. P. 150. Symptoms: Pain in the back; nervous, restless.</p>	M	44	5/6	5/6	O. D. Macular region slightly granular otherwise negative. O. S. Slight periarteritis and endarteritis. Macular vessels slightly tortuous; macula slightly granular, otherwise negative.
<p>3. S. B. G. 3-10-13. Medical Diagnosis: Chronic nephritis. Heart enlarged; systolic murmur, radials thickened. Urine: Trace albumen, granular casts; phenosulphon. rather rapid elimination. B. P. 160 to 190. Symptoms: Markedly sleepy, some dyspnea on exertion, slight edema of legs.</p>	M	48	5/7 $\frac{1}{2}$	5/7 $\frac{1}{2}$	O. D. Disc congested edematous. Veins engorged, arteries tortuous; perivasculitis; arteriovenous compression. Retina edematous. Some slight choroidal changes. O. S. One large retinal hemorrhage, subhyaloid, otherwise same as O. D.
<p>4. A. S. R. 3-20-13. Medical Diagnosis: Chronic nephritis, secondary contracted kidney (interstitial type). Heart enlarged, systolic murmur. Urine: Large amount albumen, granular and hyaline casts; phenosulphon. rather rapid elimination. B. P. 225 to 186. Marked edema over the whole body, dyspnea at night, palpitation.</p>	F	46	5/5	5/4	O. U. Retina slightly hyperemic. A few scattering minute white points in the macula. Possibly slight endarteritis.
<p>5. J. C. 4-2-13. Medical Diagnosis: Acute exacerbation of chronic nephritis. Heart enlarged, radials sclerosed. Urine: Albumen trace, few hyaline casts; phenosulphon. elimination moderately retarded. B. P. 168 to 142. W. B. C. 12,700, R. B. C. 4,200,000. Wassermann negative. Urea blood .68 gm. per liter. Symptoms: Headaches intense, dizziness, dim vision, nausea and vomiting.</p>	M	50	6/15	6/12	O. D. Disc swollen 1. D. Veins engorged and tortuous and irregular in caliber; arteriovenous compression dilation. Retina edematous; small hemorrhages below macula; corkscrew vessels in macula. O. S. Disc swollen 3 diopters. Veins markedly tortuous, engorged and irregular in caliber; arteriovenous compression dilation. A few glistening white spots in the macula. Endarteritis of the central artery. Edema of the macula O. U.
<p>6. A. M. N. 4-4-13. Medical Diagnosis: Chronic nephritis, late stage. Cardiac hypertrophy, mitral regurg., systolic murmur, capillary pulse. Urine: Large amount albumen, granular casts; phenosulphon. very slow elimination. B. P. 180 to 204 W. B. C. 25,700, R. B. C. 4,400,000 Hg. 55 per cent. Blood urea high .80 gm. per liter. Symptoms: Nausea, vomiting, dyspnea palpitation, edema legs and feet. (Died in ten days.)</p>	M	47	6/5	6/5	O. D. Periarteritis; periphlebitis; vessels tortuous; marked endarteritis; arteriovenous compression. Retina edematous; several small hemorrhages; retinal sclerotic change above macula. Macula granular and edematous. O. S. Marked perivasculitis; arteries very tortuous; endarteritis, arteriovenous compression. Retina hyperemic marked edema. Macula edematous with beginning sclerotic changes.

SERIES B—Concluded.

Chronic Nephritis	Sex	Age	Vision O D O S		Ocular Findings.
7. D. D. Van A. 4-4-13. Medical Diagnosis: Chronic nephritis. Cardiac insufficiency, enlarged heart, extra systolic murmur. Urine: Large amount of albumen, fine granular and hyaline casts; phenosulphon, very slow elimination. B. P. 170 to 155. Blood urea .38 gm. per liter. Wassermann negative. Symptoms: Nausea and vomiting; dyspnea on exertion. Palpitation. (Died in 3 mo.)	M	58	5/5	5/4	O. D. Vessels tortuous. Retina edematous; many small glistening subretinal spots in macula. Macula edematous; a few fine central choroidal changes. O. S. Disc edematous. Large flame shaped hemorrhage below and nasally. All the vessels contracted and tortuous; arteriovenous compression dilation. Macula edematous and granular; whitish subretinal spots in macula. Choroid granular below macula.
S. A. L. G. 4-16-13. Medical Diagnosis: Chronic parenchymatous nephritis (mild.) Urine: Albumen, small amount present, hyaline and granular casts; phenosulphon, elimination very good. W. B. C. 15,300, R. B. C. 4,100,000 Hgb. 80 per cent. Symptoms: Headaches, sleepy.	M	29	5/5	5/5	O. D. Slight endarteritis; veins somewhat engorged, perivasculitis. Retinal edema; arteriovenous compression. O. S. Disc edematous. Practically the same as O. D.
9. W. W. 4-28-13. Medical Diagnosis: Chronic nephritis; cardiac insufficiency; marked anemia. Heart enlarged, systolic murmur; radials slightly thickened. Urine: No albumen, few granular casts; phenosulphon, elimination very slow. B. P. 190, W. B. C. 12,150 R. B. C. 3,450,000 Hgb. 27 per cent. Blood urea .53 gm. per liter. Symptoms: Dizziness, blurred vision abdominal pain, diarrhea, edema of legs dyspnea on exertion.	M	58	5/5	5/12	O. D. Disc swollen and edematous. Marked arterial and venous pulsation; veins engorged and irregular in caliber; arteriovenous compression. Retina edematous. Cork screw macular vessels; macula edematous. Diffuse choroidal changes in periphery. O. S. Disc slight edematous. Veins irregular in caliber; arteriovenous compression dilation, endarteritis. Retina slightly edematous.
10. J. E. M. 7-14-13. Medical Diagnosis: Chronic parenchymatous nephritis, secondary contracted kidney, unemia. Heart enlarged. Urine: Large amount of albumen, no casts; phenosulphon, no elimination in 2 hours. B. P. 160 to 148. Blood not examined. Symptoms: Dyspnea with cough, eyes puffy in A. M., edema of ankles.	M	24	5/6	5/6	O. D. Disc edematous with exudates; disc swollen about 1 diopter. Marked endarteritis and periarteritis. White spots about the disc (remains of old hemorrhages.) Retina edematous. Typical radiating white star like figure in the macula. O. S. Disc markedly edematous, swollen 1 diopter. Arteries irregular in caliber; marked endarteritis and perivasculitis; arteriovenous compression dilation. Many minute mottled whitish changes in the retina between the disc and the macula where they have a radiating arrangement. Retina edematous.
11. J. A. T. 7-31-13. Referred to Medical clinic; diagnosis: Chronic nephritis; hypertension. Heart enlarged; emphysema of lungs. Urine: Albumen present with granular and hyaline casts. B. P. 180 cyst. 140 dias. Symptoms: Dizziness; dyspnea on exertion.	M	43	5/4	5/4	O. D. Disc is edematous. Arteriovenous compression. Retina and macula edematous. O. S. Periarteritis; arteriovenous compression; exudates near superior nasal vessels. Retina edematous.
12. N. B. 2-12-14. Referred to Medical clinic. Diagnosis: Diabetes mellitus; chronic parenchymatous nephritis. Enlarged heart. Urine: Considerable albumen and some sugar. B. P. 170. Symptoms: Excessive thirst; dyspnea on exertion; swelling of feet.	F	63	1/60	5/20	O. D. Nearly mature senile cataract, fundus reflex, no details. O. S. Incipient cataract. Disc congested. Arteries contracted; arteriovenous compression dilation marked. Fundus edematous. Numerous hemorrhages. Portion of radiating white spot in macula and down.

SERIES C.

Hypertension	Sex	Age	Vision O D O S		Ocular Findings.
1. M. C. 12-19-12. Medical Diagnosis: Hypertension. Urine: Albumen, negative, no casts. B. P. 210 to 140, systolic heart murmurs. Symptoms: Dizzy spells; unconscious spells; headaches; dyspnea on exertion; edema of lids and ankles.	F	48	5/5	5/6	O. D. Disc hyperemic. Retina hyperemic and edematous; one small hemorrhage. Arteriovenous compression slight endarteritis. Small exudate in macula. O. S. Disc more hyperemic. Macula edematous. Endarteritis; tortuous arteries and veins; no hemorrhage; one exudative change below macula (old hemorrhage?)
2. J. R. 12-30-12. Medical Diagnosis: Chronic hypertension. Urine: Albumen, faint trace, few hyaline casts. B. P. 210 to 160. Heart enlarged, systolic murmurs. Symptoms: Headaches; dyspnea; ankles edematous.	F.	59	5/20	5/20	O. D. Incipient cataract. Discs congested. Smaller vessels show silver wire characteristics; arteriovenous compression dilation marked. Veins markedly tortuous. Retina edematous. Scattering minute choroidal changes. O. S. two small flame shaped hemorrhages near the macula; macula edematous, otherwise practically the same as O. D.

SERIES C—Concluded.

Hypertension	Sex	Age	Vision O D O S		Ocular Findings.
3. S. N. 4-10-13. Medical Diagnosis: Hypertension (chronic nephritis?) Heart enlarged, radial slightly thickened. Urine: No albumen uor casts. Phenol-sulphon. elimination fair. B. P. 188 to 154. W. B. C. 8,300, R. B. C. 4,940,000. Symptoms: Dizziness, vomiting and nausea A. M.	M	49	6/20	6/20	O. D. Disc edematous extending below into edematous area in retina in which inferior temporal artery is buried. This area is elevated about 3 D, probably slight detachment. Whole retina hyperemic and markedly edematous. Macula edematous. Localized chorio-retinal change down and temporally. O. S. Periarteritis. Retina congested and markedly edematous. Macula edematous. General characteristics about the same as O. D. Appearance of fundus somewhat resemble leukemic retinitis.
4. W. J. M. 5-22-13. Medical Diagnosis: Hypertension; arterial sclerosis; prostatic hypertrophy. Radial thickened. Urine: No albumen, hyaline and granular casts. Phenosulphon. elimination good. B. P. 180. Symptoms: Patient disorientated, poor memory.	M	57	5/7½	5/7½	O. D. Many vitreous opacities. Disc congested and edematous. Veins engorged, somewhat tortuous and irregular in caliber; arteriovenous compression dilation; marked endarteritis. Retina edematous; several white spots in the retina irregularly arranged mostly bordering the macula. Small hyaline dots in the macula; macula edematous. O. S. Disc edematous and hyperemic. Endarteritis; some perivascullitis; arteriovenous compression dilation.
5. A. McD. 5-22-13. Medical Diagnosis: Chronic hypertension; arterial sclerosis. Cardiac arrhythmia, extra systole. Radials beaded; brachials sclerotic. Urine: No albumen, no casts. B. P. 235 to 170. Symptoms: Vertigo.	M	78	5/20	5/7½	O. D. Lenticular opacities. Disc edematous. Veins irregular in caliber. Retina markedly edematous. Macula edematous. O. S. Arteriovenous compression dilation. Retina edematous. Macula hyperemic and granular.
6. T. A. S. 10-22-13. Medical Diagnosis: Hypertension; arterial sclerosis; chronic nephritis. Enlarged heart, systolic murmur. Urine: Albumen, negative; hyaline casts; phenosulphon. elimination fair. B. P. syst. 232, diast. 185. Wasserman negative. Symptoms: Unconscious spells; headache; some dyspnea on exertion. W. B. C. 9,650, R. B. C. 4,810,000.	M	40	5/5	5/5	O. D. Disc hypermic. Veins engorged and tortuous, periarteritis, endarteritis; arteriovenous compression dilation. Retina edematous; area of retinal change with swelling near disc; localized detachment. White spots above the disc and the superior macular region. Two small linear hemorrhages. O. S. Disc swollen 1 diopter, edematous and hyperemic. Perivascullitis; small hemorrhage near the disc; veins engorged; temporally the vessels are tortuous; arteriovenous compression dilation. Retina edematous, some scattering hemorrhages and old hemorrhagic areas. Macula edematous.
7. B. L. 1-11-14. Referred to Medicine. Medical Diagnosis: Myocardial insufficiency; hypertension; arterial sclerosis (chronic interstitial nephritis?) Heart enlarged. Urine: Slight trace albumen, sp. gr. 1006. B. P. 200. Symptoms: Headache; vomiting; dyspnea on exertion.	F	55	6/60 W. C. 6/60	5/20 6/10	O. D. Disc edematous. Endarteritis and periarteritis; vessels tortuous; arteriovenous compression. Many small exudates and hemorrhages most numerous in the macula; macula edematous. O. S. Disc edematous. Veins engorged; arteriovenous compression dilation. Old thrombosis of inferior temporal veins, walls showing only as atrophic thin white lines, branches traceable. Some sclerotic changes in choroidal vessels.

SERIES D.

Acute Nephritis.	Sex	Age	Vision O D O S		Ocular Findings.
1. W. H. 3-13-13. Medical Diagnosis: Acute nephritis. Paralysis from anterior poliomyelitis, attack 4 years ago. Rapid heart. Urine: Albumen, present; no casts. B. P. 125. W. B. C. 14,500, R. B. C. 4,600,000 Hgb. 75 per cent. Symptoms: Has spots before eyes and headaches.	M	19	5/4	5/4	O. D. Nerve head congested and edematous. Marked perivascullitis; veins engorged; arteriovenous compression dilation. Mucula edematous. O. S. Disc more edematous. Some endarteritis; small veins tortuous. Condition practically the same as in O. D.
2. M. J. 6-3-14. Medical Diagnosis: Acute nephritis following mastoid operation for mastoiditis and sigmoid phlebitis. Urine: Normal before operation; after operation, large amount of albumen, granular and hyaline casts. Blood cultures: Streptococcus bacteremia. W. B. C. 14,500, 87 per cent. polynuclears. Septic temperature for some time after operation. Recovering; urine now negative.	F	9	5/5	5/5	O. D. Disc swollen and edematous. Veins engorged and tortuous; arteries contracted; slight arteriovenous compression. Retina edematous. O. S. Practically the same as O. D.

SERIES E.

Miscellaneous Retinal. Conditions Suggesting Nephritis	Sex	Age	Vision O D O S		Ocular Findings.
1. L. F. 3-20-13. Medical Diagnosis: Secondary anemia. Heart: hemic murmur. Urine: Albumen, negative, casts, negative. B. P. 170-180. R. B. C. 3,200,000, W. B. C. 3,900 Hgb. 39 per cent. Has recurrent uterine hemorrhages. Is weak.	F	49	5/6	5/6	O. D. Periarteritis and endarteritis; veins irregular in caliber; arteriovenous compression dilation. Retina hyperemic and edematous; some localized sclerotic retinal changes below macula. Macula edematous. O. S. Sclerotic retinal changes above and below the macula, also nasally. Slight choroidal changes, otherwise does not differ from O. D.
2. J. H. 3-25-13. Medical Diagnosis: Abdominal adhesions, hemorrhoids. Urine: No albumen, no casts. B. P. 155 to 180. Symptoms: Pain in stomach, nausea and vomiting. (Died in hospital).	M	49	5/5	5/5	O. D. Slight periarteritis; slight endarteritis; veins engorged; arteriovenous compression dilation. Few glistening spots in the macula (hyaline, subretinal). O. S. Practically the same as O. D.
3. A. P. 4-12-13. Medical Diagnosis: Reflex vomiting, enlarged tender uterus, right ovary enlarged. Urine: No albumen, no casts. Phenosulphon. elimination rather slow. B. P. 180 to 150. W. B. C. 10,800, R. B. C. 3,930,0000. Hgb. 67 per cent. Symptoms: Dizzy; nausea and vomiting; edema of face and eyelids; voice hoarse; dyspnea at night.	F	48	5/4	5/4	O. D. Retina edematous. Some irregular white spots above the macula; macula edematous. No marked vascular changes. O. S. Arteries slightly contracted; arteriovenous compression dilation. Small white spots in the retina nasally.
4. A. M. B. Medical Diagnosis: Chronic Bronchitis and emphysema of the lungs. Urine negative. B. P. 135. Wassermann negative.	M	75	2/60	2/60	O. D. Lenticular opacities. Disc edematous. Endarteritis; arteriovenous compression. Many exudative spots in the macular area; subhyaloid hemorrhage between the disc and the macula. O. S. Lenticular opacities. Disc edematous. Choroid retinal changes in the macula. Retina edematous. Atypical.

Features	Total	%	A Chronic interstitial nephritis	B Chronic Nephritis	C Hypertension	D Acute Nephritis	E Miscellaneous
Total cases	41	100	16....39%	12....29%	7....17%	2.... 5%	4....10%
Male	29	71	13....81%	9....75%	4....57%	1....50%	2....50%
Female	12	29	3....19%	3....25%	5....43%	1....50%	2....50%
Age averages 45			43 to 75-55	24 to 63-45	40 to 78-57	9 to 19-14	48 to 75-55
Vision			c. f. to 5/4 1 leucoma	1/60 to 5/4	6/60 to 6/6	5/5 to 5/4	2/60 to 5/4
Opacities of media			3 cataracts	2 cataracts			1 cataract
Edema of the disc	28		11	7	7	2	1
Congestion or slight swelling of disc	10		3	3	2	2	
Choking of disc I D. or more	7		3	3	1		
Periarteritis	14		3	6	3	1	1
Endarteritis	25		11	6	5		3
Endarteritis of the central artery	1			1			
Irregular, tortuous or contracted arteries	23		9	9	3	1	1
Silver wire arteries	6		5		1		
Cork screw macular vessels	4		1	3			
Arteriovenous compression	10		4	3	1	1	1
dilation	24		8	6	6	1	3
Veins engorged or tortuous	14		1	7	2	2	2
Peripblebitis	3			3			
Venous thrombosis	1				1		
Hemorrhages	21		10	6	4		1
Exudative and other retinal changes	20		11	2	5		2
Edema of the retina	33		14	9	6	1	3
			1 double				
Detached retina	4		2 1 localized		2 localized		
Edema of macula	23		7	6	7	1	2
Radiating or star shaped macular changes	4		1	3			
Other macular changes	12		4	4	2		2
Choroidal changes	6		3	3			
Choroidal vessels sclerosed	1		1				
Inflammatory characteristics	13		6	5	2		
Atrophic characteristics	6		2	3	1		

Taking up the ophthalmoscopic notes we find that edema was noted twenty-eight times in the disc, thirty-three times in the retina, and twenty-three times in the macula, and that it was found in all the types of the cases examined, though relatively most commonly in interstitial nephritis in which vascular changes are most prominent and nearly as frequently in

the cases of hypertension. Its relation to the blood pressure does not appear, as the B. P. was high in nearly all the cases examined. However, both acute cases show edema and they were cases of low B. P., and edema was present in the case of bronchitis and emphysema in which the B. P. was only 135.

Congestion or slight swelling of the disc was present in ten cases and rather more often in the cases in which elimination was lessened and the blood urea increased. This feature was quite marked when the disc was swollen 1 diopter or more as it was in seven cases.

Of the cases of interstitial nephritis, one disc was swollen one and one-half to two diopters in which the elimination of phenosulphonephthalein was retarded and the blood urea .89 gm. per liter, W. B. C. 8,500, R. B. C. 3,730,000. In the case with the disc swollen two diopters in blood urea was .82 gm. per liter, W. B. C. 5,100, R. B. C. 4,630,000; in the case of swelling of the disc 4 diopters the phenosulphonephthalein elimination was much retarded and the blood urea .72 gm. per liter, W. B. C. 7,750, R. B. C. 4,810,000. All these cases showed considerable albumen and casts. Four other cases of choked disc, papilledema, were found, three in chronic nephritis, and one in hypertension. In the chronic nephritis case in which the disc was swollen four diopters, the phenosulphonephthalein elimination was much retarded, the blood urea .71 gm. per liter, the W. B. C. was 11,200, R. B. C. 3,000,000. In the case swollen 1 diopter and 3 diopters the phenosulphonephthalein elimination was retarded and the blood urea was .68 gm. per liter; the W. B. C. count was 12,700, R. B. C. 4,200,000. In the other case in which the disc was swollen one diopter unfortunately no blood test could be found, but there was no phenosulphonephthalein elimination in two hours. The quantity of albumen was considerable in each case. In the case of hypertension with a swelling of the disc amounting to one diopter the phenosulphonephthalein elimination was retarded, the blood urea not recorded, W. B. C. 9,650, R. B. C. 4,810,000. There has been considerable discussion as to whether choked disc in albuminuria is caused by toxemia or by intracranial pressure. In none of these cases is there a record of increased intracranial pressure but there is a lack of elimination with increase of blood urea in most of the cases. There is no reason why increased intracranial pressure might not be present but it would seem as if the retarded elimination in these cases was of considerable significance.

Periarteritis was present in fourteen cases. It is interesting to note that it was relatively more frequent in chronic nephritis 50 per cent. and acute nephritis 50 per cent. than in interstitial nephritis and hypertension.

Endarteritis is present in twenty-five cases, 61 per cent. It seems to be a more frequent feature in hypertension and interstitial nephritis than in chronic nephritis in which there are six or 50 per cent. The one case of endarteritis of the central artery was probably accidental.

Contracted or tortuous arteries, or arteries with irregularities in caliber are present in twenty-three cases. They are probably associated with the other vascular changes.

Silver wire arteries were seen in six cases of the arterial sclerotic type, five in interstitial nephritis, one in hypertension. They, of course, indicate advanced changes in the vessel walls. They have, when present, some prognostic value.

Corkscrew-like twists in the macular vessels are quite commonly mentioned as indicating sclerotic vascular changes in the retina. When present no doubt they are significant, but they were relatively infrequent, in this series there being but four, nearly 10 per cent.

Arteriovenous compression dilation, in which the venous return flow was so retarded by an overlying artery as to cause the vein to dilate from the increased intravenous tension caused by the compression, was present in twenty-four cases. The condition nearly always shows the presence of increased arterial tension, thickening of the arterial walls, or of both. It may indicate only a local condition, intraocular, but it is usually more or less closely related to a general condition. It may be due to an anomalous condition but in such cases it is not likely to be seen at more than one or two vessel crossings. Changes in the veins other than dilation from compression were relatively infrequent and like periarteritis they were relatively less common in the cases of interstitial nephritis and hypertension.

Hemorrhages were present in ten cases, about 25 per cent. Their diagnostic significance and importance is amply proven. They were relatively more frequent in the cases of interstitial nephritis and hypertension. Exudative changes appear in this series to have the same relation, as to type, as hemorrhages.

That detachment of the retina should be present in 10 per cent. of the cases was a surprise to me, although when one remembers the vascular changes that take place and that these changes may take place in the choroidal vessels also, one can find little difficulty in explaining subretinal fluid which might increase enough to cause a detachment to become extensive. Local detachments have been more frequently noticed, however, and in three of these cases they are localized. All of the detachments are in cases showing vascular lesions predominating, interstitial nephritis two, hypertension two.

The bad prognosis generally given in cases showing radiating or star shaped changes in

the macula is probably justifiable; most cases die within two years; occasionally they live much longer under good care. Rarely these changes are seen in cases presenting no kidney disease. They are caused by exudative and degenerative changes in the retina and their peculiar arrangement is due to the anatomical features of the horizontal layer of Henle.

Other macular changes are often present; their prognostic significance is not nearly as grave. They were present in 29 per cent of the cases. They are seen in cases not albuminuric much more frequently than the star shaped figure.

Choroidal changes were present in six cases, over 14 per cent. They are most likely dependent upon vascular changes in the choroid having the same etiology as the vascular changes in the retina and kidneys. Definite sclerosis of the choroidal vessels was made out in but one case, one of interstitial nephritis.

The thirteen cases showing changes of an inflammatory type include, the cases of choked disc, simple papillitis and exudative retinitis. They all seem to have more or less relation to the rapidity of elimination, the amount of blood urea, and perhaps to the presence of a relative increase in W. B. C., a condition quite noticeable in several of the cases of choked disc.

Atrophic changes are probably common in old cases of all types, or in subacute cases where some of the lesions are old. There were six cases showing such changes, all in the chronic types.

In the acute cases and in the subacute cases, the changes, other than edema and increased vascular tension of greater or less degree, were relatively small. It is exceedingly interesting to note that practically all the cases showing a rapid elimination also show relatively few retinal changes, and that those changes that do show, are of an early type, without hemorrhages, exudates, sclerotic changes or marked papillitis.

No definite relation could be established between the amount of the blood pressure and the retinal changes; however, the number of cases presented, especially those of the inflammatory or acute types is too small to establish a relation.

In the preliminary considerations in the early portion of this paper the following questions were offered for solution:

1. Is there a recognizable relation between the type of general disease investigated and the associated ophthalmoscopic picture?
2. May there be a definite type of lesion in the central nervous system corresponding to the neuroretinitis, papillitis or vascular changes seen in the retina?
3. Is there a relation between the type of fundus lesion and the type of nephritis with which it is associated?

4. What relation do hemorrhagic and exudative changes in the fundus bear to the pathological changes present in the acute forms of nephritis?

5. Are there constant characteristic changes in the fundus in cases of parenchymatous nephritis?

6. Can a characteristic relation be established between the vascular changes accompanying chronic interstitial nephritis and the vascular changes in the fundus?

7. Is there any relation between the small dots or spots seen in the macula and the type of vascular change in the fundus?

8. What is the relation between the star like figure in the macula and the type of vascular changes in the fundus?

9. What relation can be established between the pathological changes found in the fundus in nephritis and the pathological changes which take place in the several varieties of kidney lesions?

Some of these problems may perhaps be answered more or less satisfactorily while others must be left for another series of investigations, particularly one which shall include a greater variety of cases.

1. Considering the relation between the type of general disease investigated and the ophthalmoscopic picture present, one may refer with advantage to the table on next page.

Taking up first the cases of interstitial nephritis and the closely related condition hypertension with symptoms similar to those seen in nephritis edema of the retina, disc or macula or some combination of these was present in every case of interstitial nephritis, and in addition, in every case of hypertension. One may conclude, therefore, that edema is a fairly constant ophthalmoscopic finding in nephritis, but, that it is not diagnostic is shown by the fact that it was also present in a high degree in all other types investigated.

Comparing percentages given in the last table we have as predominating features for chronic interstitial nephritis and hypertension, edema 100 per cent., endarteritis 70 per cent., arteries tortuous or contracted 52 per cent., silver wire arteries 26 per cent., arteriovenous compression 61 per cent., hemorrhages 61 per cent., exudative changes 70 per cent., detached retina 17 per cent. In other words the predominating features of chronic interstitial nephritis and hypertension are almost exclusively dependent upon changes in the vascular system, particularly the arteries.

On the other hand we have as predominating features for chronic nephritis, edema 83 per cent., congested nerve head 25 per cent., swelling of disc one diopter or more 25 per cent., periarteritis 50 per cent., endarteritis 50 per cent., arteries tortuous or contracted 75 per cent., cork

Type of Disease	Findings	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	Edema																					
A. Chronic Interstitial Nephritis	100	19	19	19	69	56	31	6	25	50	6	0	62	68	12½	6	25	25	37	12		
B. Chronic Nephritis	83	25	25	50	50	75	0	25	25	50	58	25	50	17	0	25	33	25	42	25		
C. Hypertension	100	29	14	43	71	43	14	0	14	86	29	0	57	71	29	0	29	0	29	14		
D. Acute Nephritis	100	100	0	50	0	50	0	0	50	50	30	30	0	0	0	0	0	0	0	0		
E. Miscellaneous	75	0	0	25	75	25	0	0	25	75	50	0	25	50	0	0	50	0	0	0		
F. Chronic Interstitial Nephritis and Hypertension combined	100	22	17	26	70	52	26	4	22	61	13	0	61	70	17	4	26	13	35	13		

screw vessels 25 per cent., arteriovenous compression 25 per cent., arteriovenous compression dilation 50 per cent., veins engorged or tortuous 58 per cent., periphlebitis 25 per cent., hemorrhages 50 per cent., star shaped macular changes 25 per cent., other macular changes 33 per cent., choroidal changes 25 per cent. The predominating features of chronic nephritis are in the small number of cases presented for comparison somewhat less of a vascular type as regards frequency, although periarteritis was nearly twice as common, and periphlebitis, although presenting but 25 per cent., was entirely absent for the interstitial class. Star shaped macular changes also, in this series are much more frequent in the chronic nephritis class as are to a much less degree other macular changes.

2. The question as to the relation between intracranial conditions and fundus changes cannot be said to have been answered in this series, other than the one instance of hyaline perivascular obliteration to be given further on. That there may have been a relation in the cases of choked disc cannot be denied.

3. The question as to there being a relation between the type of fundus lesions and the type of nephritis present could not be answered without many more cases for comparison. There can be no doubt, however, that if, in this series, one analyzes the observations and deductions derived from the last table, it appears that periphlebitis, tortuous veins, congested or swollen discs and other inflammatory changes with an associated edema of the disc, retina, macula, in over 80 per cent. of the cases, would suggest chronic nephritis, while changes in the intima of the arteries, with edema and other features of high tension and interference with nutrition are more distinctive features in the ophthalmoscopic picture of chronic interstitial nephritis.

The number of cases of acute nephritis is so small that deductions are unsafe although it may not be assuming too much to call attention to the fact that edema, congestion of the discs, periarteritis, tortuous arteries and veins and arteriovenous compression are probably more of an inflammatory or toxic type than of a vascular degenerative type.

The miscellaneous cases seem to show that similar features such as edema 75 per cent., periarteritis 25 per cent., endarteritis 75 per cent., tortuous arteries 25 per cent., arteriovenous compression dilation 75 per cent., veins engorged 50 per cent., hemorrhages 25 per cent., exudative changes 50 per cent., macular changes (not typical) 50 per cent. may be found in conditions not strictly nephritic and that one cannot repose too much confidence in the ophthalmoscopic diagnosis of nephritis.

4. The fourth question must remain unanswered as to acute nephritis, observing in passing, that in so far as our cases go, hemorrhages and exudates were absent in both cases. In chronic interstitial nephritis hemorrhages were present 62 per cent. of cases, in hypertension 57 per cent. of cases, combining the two we have for the vascular degenerative type 61 per cent., while in the chronic nephritis 50 per cent. showed hemorrhages. Exudative changes were present in the interstitial type in 68 per cent., in hypertension 71 per cent. or combining as before 70 per cent.; in chronic nephritis exudative changes were present in but 17 per cent. May we conclude from these facts that both hemorrhages and exudates are more characteristic of interstitial than of forms of chronic nephritis not belonging to the class of predominating degenerative arterial changes.

5 and 6. Answers to the fifth and sixth questions insofar as is possible in this series have been included in those already given.

7. The seventh question must not be considered as answered by this series excepting in that macular changes were rather more frequent in the chronic nephritis cases than in interstitial nephritis or hypertension or in the two combined; that macular changes other than edema were absent in acute nephritis and present in 50 per cent. of the miscellaneous cases.

8. Considering question eight one can only say, that while a more or less typical star shaped figure was present in 25 per cent. of the cases of chronic nephritis, this feature was present in but 6 per cent. of the cases of interstitial nephritis and entirely absent for the cases of hypertension. It was also absent in the cases of acute nephritis and from the miscellaneous cases.

9. Question nine is perhaps the most difficult and the most interesting of any. In each case we have an organ made up largely of highly differentiated epithelial cells, differing widely as to embryological origin, but each bound together by a supporting frame work, and each having a rich and peculiar type of vascular organization and blood supply.² As in diseases of the kidney, so in diseases of the retina, the changes which take place are of a degenerative type, often dependent upon the associated or preceding vascular changes.

Edema which was common to all classes and almost constantly present, occurs in the earliest stages of retinitis as a diffuse edema affecting the disc, retina and macula. It gives rise to a watery haziness or opalescence with increase in the retinal depth as measured by the ophthalmoscopic parallax. Later localized edema may occur in the retinal substance forming cystic spaces which may become filled with hyaline or fat derived from the degenerating arterioles with subsequent formation of cholesterol crystals. When the spaces become large and distended they may rupture externally giving rise to subretinal fluid with detachment. As a result of the pressure edema and intraeystic exudate, the nerve elements degenerate, the fluid filling the spaces changes to hyaline, and more or less well defined white spots or areas develop. In the severe types, endothelial leucocytes may penetrate the hyaloid boundary and lead to the formation of white bands, or in more severe cases to proliferating retinitis.

The vascular changes upon which the retinal changes to so large a degree depend are generally the result of hyaline necrosis with fat formation due to changes in the intima. Endarteritis is followed later by deposits of lime salts in the necrotic areas of the intima. The perivascular changes are due, either to albuminous exudate followed by hyaline deposits in the perivascular sheaths, or to a peculiar type of

hyaline degeneration seen in other parts of the central nervous system, in which there is deposited around the wall of the artery minute droplets of hyaline which fuses to form a complete sheath for the vessel; the cause of this formation is not known; calcification often occurs.³ The condition constitutes the true silver wire artery. Hemorrhages when small may undergo complete absorption through the activity of the endothelial leucocytes. If large, the blood pigment may be partially, absorbed through the same means, while fatty degeneration of the coagula followed by cholesterolin formation and the development of eystoid spaces with hyaline and other changes, may lead to permanent white patches more or less associated with unabsorbed irregularly arranged blood pigment.

Leaving the retinal side of the picture and turning to the kidney lesions we find, here too, that vascular changes are frequently the predominating feature of the several forms of the disease, with in addition, the peculiar degenerative processes which take place in the various tubules. Here, too, we see hyaline and fatty changes in the vessel walls and in the epithelial cells of the tubules. While amyloid appears in the vessel walls I find no mention of its appearance in retinal disease, however, as amyloid appears to lead to hyaline thickening with gradual occlusion of the vessel lumen, it might be found in the retina also in cases in which an artery becomes obliterated. Amyloid appears first in the glomeruli and the smaller arterioles, and later forms around the tubules, leading to colloid and hyaline degeneration of the epithelium of the tubules.

In the toxic form of acute tubular nephritis marked necrotic changes are seen in the epithelium of the tubes, associated with inflammatory reaction, lymphocyte infiltration, leucocyte migration, etc. Inasmuch as this type of cases was so nearly absent from the series under consideration no retinal relation need be discussed, but inasmuch as similar changes sometimes take place in the heart and liver in toxic conditions, it seems not unlikely that some definite relation may sometime be established.

Toxic glomerular nephritis presents certain peculiar features in which we have (a) the capsular type with inflammatory exudates into the capsular space and degeneration of the capsular epithelium, or in some cases, proliferation of the capsular epithelium; (b) the intracapillary type in which the glomerular capillaries are involved, with intracapillary fibrin formation and the accumulation of leucocytes, without much epithelial involvement. Inasmuch as the types of glomerular nephritis are due to toxins which often have a general distribution and as they are more or less of an inflammatory character

2. Although the choroid is not a part of the retina it is the source of nutrition for the other retinal.

3. Principles of Pathology and Histology, Mallory, P. 444.

one might expect that an associated reaction in the retina would also take on an inflammatory character, as would be shown by neuro retinitis, papillitis, periarteritis, periphlebitis, exudates, etc. In the clinical classification of chronic nephritis in which doubtless there were some cases more or less of these types, inflammatory retinal changes appeared to be predominating features.

In chronic interstitial nephritis, endarteritis affecting the inner fibrous layer and the endothelium, such as occurs in the vessels in general arterial sclerosis, is present. The necrotic process attacks the cells of the intima particularly the fibroblasts, necrosis occurs, and the endothelial leucocytes are set free. When regeneration occurs there is an over production of new elements with consequent narrowing of the vessel. If the endothelial cells degenerate, fibrous thrombi may follow leading to irregular thickening and localized occlusion of the vessel; secondary sclerosis and disappearance of glomeruli follows. When the occlusion is rapid, hemorrhage into the glomeruli may result. The vascular changes are followed by degeneration and atrophy of the renal epithelium with contraction and apparent increase of the connective tissue elements.

That there is quite a definite relation between the pathological changes in the kidney in interstitial and the associated pathologic changes of albuminuric retinitis would seem to be established in the series by the fact that the retinal lesions recognizable with the ophthalmoscope are pathologically as like those found in the kidneys in interstitial nephritis as could be expected in organs so different in function and gross structure.

The preceding report was made possible by the kind co-operation of Professor Albion W. Hewlett and his staff of the Medical Clinic in permitting the use of the cases and in the giving access to their records for the reports on the medical findings. For permission to make the ophthalmoscopic studies I am indebted to Professor Walter R. Parker. For kind assistance in collecting the medical notes I am indebted to Dr. D. V. Smith, Assistant in Ophthalmology. I am deeply grateful to all these gentlemen for these kind favors.

DISCUSSION.

DR. WALTER R. PARKER: When Dr. Hewlett mentioned to me the fact that on the Medical Clinic they were doing some investigation along the lines of establishing the relationship of the elimination process to the different forms of nephritis, it occurred to me that there was an opportunity for some work along the same lines in connection with the various changes in the fundus. Dr. Slocum was glad to take this phase of the work up and you have heard the report of his investigation.

The investigation of these cases throws us at once into the general problem of vascular-sclerosis

with its manifestations. The pathology of the changes in the fundus are no different from similar changes in other parts of the body. They may be local or general, primary or secondary.

The primary form develops apart from any local inflammation. Seen in chronic alcoholic poisoning, syphilis and albuminuria. The secondary form results from a local inflammation as in disseminated choroiditis or in retinitis pigmentosa. Syphilis may be either the primary or secondary cause of vascular sclerosis. In the second stage when the infection is general with wide spread endarteritis, the sclerosis is primary. But when the disease shows local changes there may be intense local secondary vascular changes.

In general sclerosis as seen in nephritis, there may be a transudation into tissues leading to various changes. If subretinal, we may have detachment. In intraretinal in the nerve fibre layer, gray patches with ill defined margins are seen, if in the internuclear layer, which is the most common form, masses of exudation somewhat star shaped in the macular region are observed. Add to this picture the various forms of hemorrhage as sublyloid, superficial or deep retinal, with the possibility of an embolism of an artery, or a thrombosis of the vein, and you have some idea of the possibilities in a study of this kind. In cases of thrombosis of the central vein, the swelling in the retina and nerve may be so great as to suggest a choked disc as seen in cases of brain tumor, while in interstitial nephritis, the changes may be all limited to the arteries themselves.

I think this study shows that, in general, the cases which have subnormal elimination will show a marked edema, and more swelling, with the consequent changes, than those which have better elimination as in the chronic interstitial type of the diseases where the changes are limited almost entirely to the arteries.

This work will be continued and I hope may add still more to our present knowledge.

DR. J. H. AGNEW: I was very much interested in Dr. Slocum's paper because many of the cases I was observing at the same time in the medical clinic with reference to the urea content of the blood. It is gratifying that Dr. Slocum has been able to group the cases which showed decreased elimination. I think it is very encouraging that there has been some distinct progress made in correlating the fundus findings with the clinical diagnosis.

DR. C. D. CAMP: If I had not already been converted to the use of the ophthalmoscope in the diagnosis of disease, I think Dr. Slocum's numerous and careful observations would convert me. I would call attention, however, to the necessity of not depending too much upon the fundus findings for a diagnosis. This strikes me particularly in reference to the presence of choked disc. You will find that many writers, and I think almost all of the text books make statements that choked disc of two diopters or over is practically pathognomonic of brain tumor. Dr. Slocum found two of four diopters and other cases of between that and two diopters.

DR. R. BISHOP CANFIELD: I am interested in the case from the clinic of otology because this patient had a suppurative process in the jugular bulb, on account of which the jugular vein and its tributaries were removed. This of course caused considerable decrease in the venous return from the head. It happened that, as is usually the case, the right jugular vein was much larger than the left and at the time of the operation, the venous return was apparently interfered with. The child had two or three diopters of papillary edema. If she

has a diplopia due to involvement of the external rectus of that side, it speaks very strongly for an abscess at the apex of the temporal bone—a very deep seated abscess or a serous meningitis at this point. If this edema can be said to be characteristic of her nephritis it gives greater latitude in attempting to find the cause of her diplopia.

DR. GEORGE SLOCUM: In the case last spoken of, the condition of the fundus is such as might be found in almost any case of acute nephritis. The changes in the disc and retina were edema, and slight venous tortuosities, and these changes were precisely similar to those in the fundus of the case of acute nephritis in which the etiology was entirely different. The amount of albuminuria and the active change going on in the kidney are entirely sufficient to account for the retinal condition.

311 South State street.

THE PROGNOSTIC VALUE OF A FUNCTIONAL TEST OF KIDNEYS IN CASES FOR PROSTATECTOMY.

KARL M. SCOTT, M.D.

(From the Department of Genito-Urinary Surgery, University of Michigan.)

The purpose of this paper is to present briefly tonight a series of cases which although rather incomplete may throw some light upon the prognosis of cases requiring a prostatectomy.

As we all know there has been, and is now considerable discussion as to the technic of a prostatectomy, its after care and its prognosis. Also that few, if any, of the men doing this work are satisfied with their morality. This paper will only take up the prognostic end of the question.

A few years ago a reagent called phenosulphothalein was recommended by Geraghty of Johns Hopkins, for use as a test of renal function. This is purely a color test, one cubic centimeter of the reagent being injected subcutaneously or preferably intramuscularly, the urine secreted during the next two hours then being tested for the amount excreted in that time by comparing its color to that of the standard solution.

Normal kidneys should show the first excretion within ten minutes, and the total excretion for the two hours would be around 75 per cent. Usually the urine of the first and second hours are estimated separately, but in the following cases that has not always been done, as it is very difficult to make a reading if the amount falls below 10 per cent.

The chief cause of death following a prostatectomy is suppression of urine and the subsequent uremic poisoning. In all cases of senile hypertrophy of the prostate there is more or less of renal function, due to the back pressure from the never empty bladder, which going up through the ureters acts upon the kidneys with a consequent ill effect upon their function. The object of the functional test is to estimate the degree of damage already done to the kid-

ney and whether their function can be increased up to a point of operative safety.

All cases of senile hypertrophy of the prostate coming into the hospital, have a permanent catheter placed into the bladder as soon as a diagnosis is made. As soon after this as possible an injection of phenosulphothalein is made, and an estimation of their eliminative power is thus made. If this is low, the catheter is kept in place, the object being to keep a constantly empty bladder.

If within a week or two a repetition of the test shows an increased elimination, the kidneys have shown that they can recover, and the prognosis for the recovery of the patient following operation is better. The determination of future procedure depends upon the degree of renal function present. This will be indicated by the following cases.

CASE 1. Mr. S., age 80, came into the hospital before the passing of urine was entirely impossible for him (this is sometimes the case). After a permanent catheter was installed his functional test showed 25 per cent. elimination in the first hour, and 20 per cent. in the second hour. On the strength of this his prognosis was thought to be good, and a prostatectomy was performed within the next few days, the patient having an uneventful recovery.

CASE 2. Mr. W., age 67, also came into the hospital before he was totally unable to void urine, though his trouble was of three years standing. Urinalysis showed albumen, pus, but no casts. His functional test showed a total of 48 per cent. elimination in two hours, so his prognosis was also considered good, and within a week a prostatectomy was performed with an uneventful recovery.

CASE 3. Mr. A., age 74, trouble being of two years standing, and for the past five weeks before entrance was unable to pass any urine except by catheter. Urinalysis showed albumen, pus, but no casts. Permanent catheter was installed and the functional test showed 34 per cent. elimination in two hours. The patient stood the catheter very well so it was kept in place for the next two weeks, when another test showed an elimination of 40 per cent. in two hours. This while not a great increase, yet the fact that there was an increase, made his prognosis rather good, and a week later a prostatectomy was performed with a good recovery.

CASE 4. Mr. B., age 61, trouble for four years standing, could pass a little urine, but his residual urine was found to be twelve ounces. Functional test was only 19 per cent. for two hours. A permanent catheter was employed for a week, but as he did not stand it well, a cystostomy was then performed, in an attempt to improve his renal function. At this time a

diverticulum of the bladder was found, situated posteriorly and beyond operative reach. This complication undoubtedly affected his other condition. Five days after the cystotomy his test showed 20 per cent. for two hours. Continuous drainage through the wound and daily irrigation cleared up the cystitis somewhat and about two weeks after the first operation his test showed 23 per cent. elimination in two hours. This, although a very light gain, yet was sufficient to make us think that he stood a good chance, though not the best of recovery, and a prostatectomy was performed. Following this he showed no signs of suppression at any time and went on to an eventual recovery.

CASE 5. Mr. F., age 66, trouble of six years standing, has employed a catheter more or less continually for the past three years. Urinalysis showed albumen, pus, and no casts. Functional test was 41 per cent. in two hours. While this was comparatively good, yet on account of the long continued use of the catheter and subsequent cystitis, it was decided to first perform a cystotomy only. A week after this the functional test was 48 per cent. so a prostatectomy was performed with good recovery.

CASE 6. Mr. S., age 63, trouble of ten years standing, and has used catheter for the past two years. The bladder was very irritable and much inflamed, so much so that he needed catheterization nearly every hour. His urine was loaded with pus, but no casts were found. Functional test showed that ten ounces of urine were secreted in two hours, but absolutely no trace of the phenosulphothalein could be found. On account of this showing an estimation of the urea content of the patient's blood was made. This was found to be 1.88 grams per 100 cubic centimeters or about four times the normal amount. This confined the previous findings, and made his prognosis very bad. The patient however was unable to stand a permanent catheter, and was suffering more or less continually, so in order to relieve him and on the possibility that he might survive a very short operation under gas anesthesia, a cystotomy was performed. The patient started to secrete urine after operation, although this consisted of little else but water and pus. Within forty-eight hours he developed uremia, and died in uremic coma four days after operation.

CASE 7. Mr. W., age 63, trouble for two years standing, has had to employ a catheter for four months previous to entrance to hospital. During this same period the patient has had rather severe gastrointestinal disturbances, being nauseated and vomiting at frequent intervals. Has been able to take very little nourishment. On entry to hospital a permanent catheter was installed. Within a few days his nausea and vomiting ceased, and his appe-

tite improved wonderfully. Educational tests on entry was 0. Urine was pale, of low specific gravity, had considerable pus, and no casts. Catheter was kept in place and a week later the test was repeated, showing no improvement. Here we have a case of relative, and symptomatic improvement following free drainage of the bladder, but no signs of absolute improvement. After four weeks of treatment with permanent catheter, a cystotomy was performed under local anesthesia. The following day he showed a few beginning symptoms of uremia, but these passed off by the next day, and patient returned to his former condition. Good drainage was maintained through the wound, and two weeks later a functional test was again made, showing absolutely no improvement over the first one. At this same time an estimation of the urea content of his blood showed 3.15 grams per 100 cubic centimeters, or more than six times the normal amount. The patient was then discharged as inoperable. There is no doubt but that a prostatectomy in this case would have been fatal to the patient.

CASE 8. Mr. R. age 80, trouble of ten years standing. For three or four years has had to employ a catheter occasionally. Recently has been unable to get along without one. Patient was in state of chronic uremia on entrance. Urine showed many casts, and much pus. Functional test was 10 per cent. for two hours. The patient would not stand a permanent catheter at all, and on account of his general arteriosclerotic condition, and the condition of his kidneys it was thought that even a cystotomy would be fatal, so the patient was sent home without further treatment.

CASE 9. Mr. S., age 65, is interesting in that it shows a correlation between the phenosulphothalein test, and the symptomatic condition of the patient. On entry, the test was 37 per cent. for two hours, and the patient was running a slight temperature undoubtedly due to pyelitis. A permanent catheter was installed, and it was thought that within a week or so he would be in condition to operate. However, at the end of the week the patient developed a sub normal temperature, nausea, loss of appetite, a badly furred tongue and became much weaker.

Shortly after this another test was run, which showed a marked drop down to 20 per cent. in two hours. The patient is now in a state of chronic uremia, and is still in the hospital, with a permanent catheter, but is considered a very bad operative risk, and such being the case probably no attempt will be made to perform any operation.

There are several more cases which might be reported here, yet as the above cases have shown nearly every variety of this problem it was decided not to put them in here.

From a study of the above cases the following conclusions may be drawn. First, that the functional test of the kidney is an invaluable aid in determining the prognosis of these cases of senile hypertrophy of the prostate. Second, that when it has been checked up by an estimation of the urea contents of the blood, it shows a considerable reliability. Third, that with it as a guide, along with other findings the mortality of these cases could be made very low. Fourth, that it indicates very clearly the affect of back pressure upon the kidney, inasmuch as

those cases that we can call early, show a much better renal function. This would also be a plea for earlier diagnosis, and operative interference as the futility of other methods of treatment and their bad affects has often been demonstrated.

In conclusion I would say that there has been no attempt to compare these findings with those of others, the data being entirely drawn from our own experience during the past six months.

The Dividends
That Are Due You By Reason of
Your Membership in Your
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Will Be Paid to
YOU
in Lansing on
September 9-10-11
Plan to Be There
to Collect
Them

The Journal

OF THE

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SEPTEMBER

Editorials

ESSENTIALS IN THE SURGICAL RESTORATION OF THE FEMALE PELVIC FLOOR.

The saying, accredited to Dr. Johnson, that "in all sublunary things, there is something to be wished which we must wish in vain," seems particularly applicable to the minor plastic surgery of the parturient tract. For, in spite of an enormous literature devoted to the subject during the past two hundred years, proper procedure seems still to be hazy in the minds of a large number of operators.

An explanation for this tardy adoption of some well-defined rule in the repair of childbirth lacerations, and especially for the rehabilitation of the perineum, may be found in the failure of the majority of operators to grasp the basic principles underlying the surgical restoration of the injured parts, for, as another old writer observes, "the assured truth of things is derived from the principles of knowledge, and causes which determine their verities."

Up to the middle of the seventeenth century, while obstetric lesions of the birth-canal were recognized, no attempts at radical restoration were made, the surgeon being well satisfied with efforts directed toward relief through rest in bed, cleanliness and, occasionally, the application of the red-hot iron. In his book published in 1649, Guillemeau, a French surgeon and one time pupil of the celebrated Ambrose Paré, was the first to advocate the closing of the torn perineum by means of interrupted sutures. The method was, however, not exten-

sively adopted, and little advance was made until the introduction of the quill suture by Baker Brown, (1854) in England, reopened the discussion.

It was at about this time also that Marion Sims in this country called attention to the advantages of silver wire in these operations. To Emmet has been justly ascribed the honor of placing the plastic surgery of the vaginal tract on a sound basis, and in his well devised operation on the perineum he rendered a signal service to womankind.

The real significance of these operations, however, did not become apparent until the anatomy of the pelvis began to receive closer scrutiny and study, an appreciation of the architecture of the parturient canal was had, and a knowledge of the necessary surgical steps in the restoration of the structures involved in childbirth lacerations began to develop. The failure of the older operations to prevent sagging and prolapse of the vagina and uterus left something to be desired, and controversy waxed strong as to what the actual supporting structures of the pelvic viscera included. Even today the question remains undecided in the minds of many who still wander in a maze of perplexity and doubt.

In the heat of discussion the simple fact seems to have been lost sight of that upon no one structure does the normal status of the pelvis depend, but rather upon a delicate and harmonious adjustment of the whole. That this is so *is repeatedly demonstrated by the failures—when only mucous membrane, fascia or skin have been united—daily observed in consulting room and clinic.* Brilliant cosmetic results may often be obtained by such procedures, but the relief of symptoms, for which the operation is undertaken, is conspicuous by its absence. Moreover, in the attempted repair of these lesions, the role of intra-abdominal pressure is too frequently lost sight of or ignored. With a heavy, subinvolted and displaced uterus, no matter how skillfully the operation may have been performed, weight and pressure from above sooner or later overcome the good accomplished and *the ultimate results are nil.* It is requisite to success in all plastic operations on these parts that the uterus be placed, and held, in as near-normal position as possible.

Lacerations of the perineum very rarely take place through the central portion of the so-called perineal body, but usually occur in one or other lateral sulcus, often excavating behind the obstetric perineum, and involving structures higher up. These overparts are the really essential; and operations which fail to include them in their technic are of no permanent value. In the restoration of the pelvic floor, as exact replacement as possible of all of the lacerated and overstretched tissues is indis-

pensible; but of the various fascias, muscles, etc., included, the *levator ani muscles*, as I was among the first to point out, (*N. Y. Jour. Gyn. and Obst.* Sept. 1892) are of chief importance.

Dissection of the female pelvis shows this muscle to be made up of several fasciculi which are attached to the bony pelvis and the "white line," the most important of which, as to sustaining strength, surround the rectum and vagina as in a sling, their action or function being to draw these tubes upward and forward toward the pubic symphysis.

Careful digital examination of the nulliparous woman, the parturient and the puerpera should convince the most skeptical of the value of these muscles in the total of the structures of the pelvic floor. Per vaginam the levatores may be felt as firm bundles on either side of the vagina about an inch above the hymen; in some women so strongly developed as to form a distinct ridge or shelf. These are the muscles which I pointed out in 1887 (*Trans. Mich. State Med. Society*) as chiefly concerned in the spasmodic condition called by Sims "vaginismus;" they are the only muscles of the vagina strong enough to hold the *penis captivus*, or, in a state of contraction to prevent the introduction of the examining finger. An unusual ease of this kind came under observation at the Womans Hospital, in which the first child had been delivered by Cesarean section from the mis-idea that an organic stricture of the vagina existed. The second delivery I was able to terminate with forceps. It is well known that loss of the sphincters of the anus may result from disease (cancer) and the patient still retain control of the bowel contents if the levatores remain intact.

These facts are introduced to illustrate the powerful action of this muscle and its important function in supporting the superimposed structures. In operation on the pelvic floor the integrity of the levatores must be first of all assured. In bringing these disconnected parts together the fascia and connective tissue will naturally be included, and by the uniting of the mucosa overall the anatomical harmony of the region will be restored.

As the muscle bundles of the levatores lie well to the sides, in the immediate repair of lacerations and in secondary operations, the needle must be carried deep laterally in order to reach and gather up the torn or overstretched fibers. The restoration of the parts does not demand "improving on nature" by the building up of a thick perineum. As pointed out by Emmet, if the upper caruncles are first brought together by tenacula, the exact depth of the original perineum can be determined, and the restoration may be made to assume the same proportions, whether thick or thin. In whatever form the

laceration appears the direction of the tear or scar must be followed, and the nicest attention given to bringing the denuded surfaces into normal relationship.

W. P. MANTON.

OUR GOVERNOR.

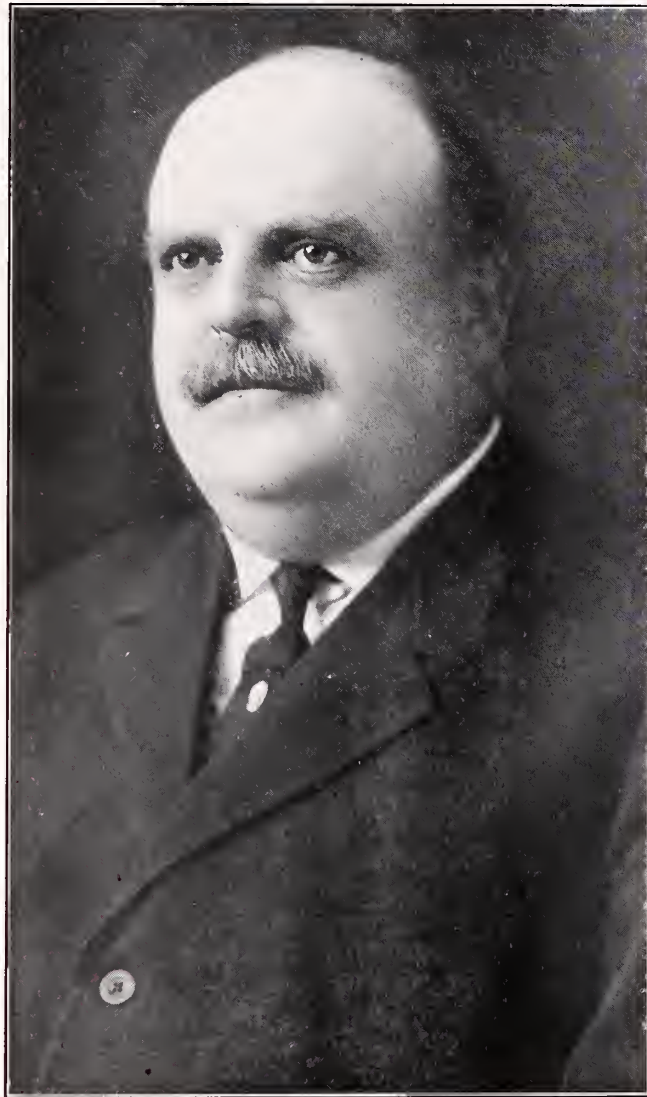
The announcement that Gov. Ferris will be a candidate for re-election is of great importance to the medical profession. Never have we had a Governor who has equalled Governor Ferris in his zeal for the protection of the people from the depredation of quackery. Possessed of an unusual knowledge, for a layman, of the primary principles upon which the science of medicine depends he at once, in his message, sounded the keynote which appealed to the Legislature as a sound principle that no one should be permitted to treat the human body by any therapeutic method unless he could demonstrate, to competent authority, that he was grounded in the sciences, a knowledge of which is essential to enable one to recognize the presence of disease. He took the position that if one is thoroughly educated in anatomy, physiology, chemistry, bacteriology, histology, pathology and diagnosis that the public will be reasonably safe in his hands no matter what different principles of therapeutics he may follow. To be sure, the Legislature would not go the whole length. It made exception of those ignoramuses who had already been practicing upon the credulity of the public for a period of two years, but the Governor very rightly approved the bill as being a step in advance.

It is not the proper function of the organ of the medical profession in Michigan, under ordinary circumstances, to participate in political discussions nor to take sides as between opposing political candidates for office of governor, but in this case we do not consider the circumstances ordinary ones. We have a governor who has placed himself strictly upon the side of strict enforcement of medical laws and in favor of improving those laws so far as possible, not of course in the interest of the medical profession, but for the protection of the people of the state. Every physician recognizes that this is an unusual attitude for a governor to assume, especially a political governor, and we believe that the medical profession owes it to itself to recognize this high minded and intelligent attitude of our present chief executive and do all in its power to ensure his re-election. He has time and again demonstrated that he was courageously endeavoring to work for the best interests of all the people regardless of political affiliations. Let us therefore, without regard to our party affiliations, rally around his

flag and demonstrate to the people that we welcome the advent of a scholar in politics, of a fearless administrator, of an honorable gentleman who has brought honor to this commonwealth as its chief executive.

Michigan, he is so well known that to repeat his life history would be only imparting repetitions of facts with which most of you are familiar.

As the chief executive of our State Society he has not rested on his laurels. On the con-



GUY LINCOLN KIEFER, M.D.

OUR PRESIDENT.

Guy Lincoln Kiefer, M.D., D.P.H.

During the past year we have twice editorially commented upon the work of Dr. Kiefer and the good influence he has exerted upon the movements directed towards the conservation of the health of the public of Michigan during his long term as health officer for the city of Detroit. The doctor's reputation is not confined to our state; it is national and he is counted as one of the many leaders in public health work in the United States. To us, the profession of

trary, during his entire administration he has kept in close touch with our county societies and has during the year addressed several of their meetings. As the last official act of his office as President he has perfected the arrangements for an inspiring meeting at our General Session, and has secured men of national reputation to discuss the doctor's relation to the public health advancement propaganda.

While Dr. Kiefer will, at our Lansing meeting, step out of office we are certain that his interest and his labors for the profession and the people of Michigan will not simultaneously

terminate. The *Journal* extends to Dr. Kiefer its thanks for his labor and efforts of the past year. It extends unto him also its best wishes for continued health and prosperity and feels certain that the future will bequeath unto him numerous opportunities to remain actively engaged in the work of organized medicine.

THE FORTY-NINTH ANNUAL MEETING

This issue contains the complete program for the 49th Annual Meeting that is to be held in Lansing, as the guests of the profession of Lansing and Ingham County, on September 9, 10, 11.

We feel most sanguine in regard to this meeting by reason of the fact that we are able to present such an interesting, up-to-date and instructive program. It is bound to be a meeting of unusual interest and one that contains much that will be of value to every medical man, no matter in what field of medicine he is active.

Today, when there is so much activity and discussion of the problems confronted in the movement for the conservation of public health, it is aptly fitting that the subject be discussed by Dr. Guy L. Kiefer in his Presidential Address, and that he has invited leading men, professional and lay, to discuss his paper at the first General Session will increase the interest in the meeting.

Dr. Ravenel of Wisconsin and Dr. Cressy L. Wilbur of New York, together with Drs. Vaughan and Sawyer and Rabbi Leo M. Franklin of Detroit, with the Hon. Judge Alfred Murphy of Detroit, who have been invited to discuss the President's address, cause us to feel safe in stating that this General Session will equal and exceed the one held in Flint last year.

The Defense League of our Organization is performing an excellent work and our members are reaping the benefit. It has been arranged, so that the members may have a little more insight of the factors that cause the bringing of malpractice suits, to have a member of the firm of our attorneys, H. V. Barbour, of Detroit, address those in attendance on the subject of, "The Origin and Prevention of Mal-Practice Cases."

The Section Officers merit our thanks for the excellent programs of timely papers which they have arranged. Our appreciation should be demonstrated by a large attendance and active participation in the discussions. As invited guests the following will address the several section meetings:

E. H. Beckman, Mayo Clinic, Rochester, Minn.
W. Seaman Bainbridge, New York City.
Channing W. Barrett, Chicago.
Derrick T. Vail, Cincinnati.

D. N. Eisendrath, Chicago.
Neil J. MacLean, Winnepeg.
Prof. L. H. Harvey, Kalamazoo.
M. M. Portis, Chicago.
Otto T. Freer, Chicago.

Every student of medicine is familiar with the work of these men and their presence at our meeting is an assurance that they will impart much that is of interest and practical to your daily work.

Every paper on the program adds to the attractiveness of the meeting and their entirety should compel you to resolve to not permit yourself to miss this meeting. Busy as you may be, important as are your engagements, they do not warrant your remaining at home.

The meeting of the County Secretaries' Association will be devoted to the discussion of the problems that confront a County Secretary and of those methods that will enable the county and state officials to build up and advance the efficiency of our organization. To this end we urge that the members of each county make it their duty to secure the attendance of their county secretary at this meeting which will be followed by a complimentary dinner.

Our meetings have for several years had the added attraction of providing for those in attendance the opportunity of making new and renewing old acquaintances. This factor has not been overlooked this year. The hospitality of the Lansing physicians is well known and they have arranged for and provided pleasing features for your entertainment and pleasure. They will cause you to relinquish all care and vanquish all your troubles. They await to bid you welcome and to proffer you their hospitality.

But enough, it is yours to choose and decide whether or not you will be a profit sharer of this meeting. Profits that, on returning home, will yield you a larger income, inspire you and enable you to do better work, be a better doctor. Your ability to maintain abreast with the present is determined by the time devoted to your county and state meetings. This forty-ninth meeting of our organization is an opportunity that you cannot permit to pass without causing it to yield you a personal revenue. You collect by attending—plan then to be there.

Editorial Comments

Your presence at the Forty-ninth Annual Meeting is urged.

One out of every eight women, one out of every eleven men afflicted, a total of 75,000 deaths each year in the United States alone—a death rate now exceeding tuberculosis die from a disease which must have been at one

time in every individual case but a single cell or a small group of cells which could have been at that time absolutely, completely removed. Thus writes J. E. Sweet, of the Surgical Research Department of the University of Pennsylvania in a recent issue of *The Therapeutic Gazette*, in discussing the cancer problem. He goes on to state: The statistics of Pennsylvania show that the average time when a physician is consulted after the patient is aware that something is wrong in the part affected is one year, and the average time of consultation with a surgeon is two years after this date.

These two statements are worthy of our concentrated thought and reflection. It is universally conceded that local lesions subjected to thorough removal by means of the knife will result in a cure and prevent recurrence. This is the recognized teaching of the present time. In view of this we are compelled to admit the pertinency and the implied impeachment of the general profession by the author when he asks: "How about the whole year that elapses after the cancer patient consults the physician before the surgeon is consulted—what is the physician doing during that year?"

The sooner the doctrine of early and prompt surgical interference is known and preached by the profession the sooner will occur the elimination of this "year of watchful waiting," and the number of inoperable cases be reduced. We cannot hope for much advancement or the recording of a lowered mortality until the physician realizes that in every case of a tumor or new growth that there is something there that does not belong there and, if there is, to early cause its removal and not wait a whole year to watch its development. Again, we must add thereto our efforts to cause every person to consult his physician twice a year and submit to thorough physical examination for the purpose of discovering these lesions when they are still localized processes. These two measures will, we believe, be most effectual in reducing the mortality in cancer until further etiological light is received.

The time spent in attending the Annual Meeting in Lansing will be the most profitable investment that you can make.

The light of publicity have caused the "quacks," illegal practitioners, and all allied cults to experience hard times. To maintain their nefarious practice they have been driven to diverse expedients in their effort to extort money from gullible individuals. The latest method comes from California and Parke, Davis Co. have been unwittingly drawn into it.

The plan employed was as follows: After a patient was given a perfunctory examination

he was told that he had this and that the matter with him and that certain serums or drugs would be required to cure him. These drugs, or serums, the patient would be informed, were very expensive and the money to pay for them would be demanded. To substantiate the claim of the high cost of the drugs the patient would be shown a drug catalogue in which these drugs were listed and the price for certain quantities quoted. It is here that the "smooth quack" showed his cunning. The patient would be shown one of Parke, Davis & Co.'s regular catalogues, which was doctored up by having printed page inserts pasted in. It was these printed pages containing serum and drug quotations that were shown to the prospective patient. To the druggist and the physician, familiar with the cost of these drugs, it will be apparent that the doctor, if able to make his patients bite, reaped a rich profit. We impart a few illustrations of these preparations and the prices thereon made by this imposture:

Specific Blood Poison—Syphilis.

Net prices

No. 1 per tube\$31.75

No. 2 per tube 22.65

No. 3 per tube 12.50

Draft or Money order must accompany orders.

These tubes contained two drachms of sodium-arseno-cacodylate. Here is another specimen:

Special Rectal Suppositories.

Formula.

Powd. Ext. Cannabina Ind....Grs. ij.

Powd. Ext. BerberineGrs. ij.

Powd. Ext. Witch HazelGrs. v.

Powd. Boracic AcidGrs. v.

Glycerine

Cocoa Butter aa.q. s.

Each suppository put up in a glass bottle and twelve such suppositories in a box. Price per box of twelve suppositories \$21.36.

Some price.

These are but two examples of many such leaves that have been thus inserted in this firm's catalogue. Quoting from a letter from the attorney of the Board of Medical Examiners of California to Parke-Davis this paragraph is pertinent: "A number of ignorant individuals have been victimized in this matter. I am satisfied from our investigation that not only in California but in other states, the catalogue referred to is being thus used to fleece the unwary."

Of course the patients, many of whom had heard of the name and reputation of Parke, Davis, when shown one of their doctored catalogues quoting these exorbitant prices took for granted that they were paying for special medicines and serums and were readily induced to part with their money.

We are assured that Parke, Davis is maintaining a watchful outlook to show up all imposters.

Invite your brother physician and urge him to accompany you to the Forty-ninth Annual Meeting.

Just because we are not utilizing more space to say it in it is just as essential for you to continue conferring your patronage upon our advertisers. Better still, try and induce some firm to occupy space and thus increase their Michigan business.

The paper on the Purchasing of Drugs, found on another page in this issue contains many pertinent suggestions that should not be ignored. We would be glad to receive for publication other opinions upon this subject.

As a result of the movements that are being carried on to conserve the health of the public there has appeared an increased desire on the part of the public to accept our invitation to learn how they may best carry out these teachings. In view of this it is imperative that the physicians and surgeons of today keep abreast of the times. These enlightened patients will not trifle with or consult the physician who has not kept up with his profession. They will not be content with a linament for rheumatism when they know that it is more than a pain in a joint or muscle. They will not resort to nostrums when they ascertain that all stomach disorders are not dyspepsias. They will come to you, doctor, for advice and examination and will not be content with having you merely take their pulse and temperature and look at their tongue. They will expect and rightfully demand the benefit of the best and acknowledged methods for diagnosing and treatment, preventative or specific, and unless you are conversant as to these methods they will desert you and consult him who has taken the pains and time to acquire them. To this end then it is incumbent upon you to make use of the opportunities at your disposal and one of the most important is activity in your county and state society.

September 10 and 11 is "swarming time" for the medical men of Michigan. A careful perusal of the program will tell you why. You will return home a better doctor.

The activity of our Committee on Tuberculosis is beginning to gradually wane now that so many Anti-Tuberculosis organizations are in the field and are ably superintending the campaign that is being waged. It occurs to us that

our state society might now well turn its attention to the furthering of an Anti-Cancer Propaganda and initiate the movement by having a committee appointed to point out ways and means. With out present knowledge it cannot be expected that the morality rate in cancer will be lowered until the public are made acquainted with the fact that early consultation will bring detection of the disease and that the early removal of the lesion will prevent its spread or recurrence. To disseminate this knowledge requires publicity and it is the duty of our society to conduct this campaign of education and publicity. Individuals have done excellent work but the time has arrived when organized effort and endorsement is essential.

On another page the reader will find two interesting letters from Dr. Dodge who is traveling in Europe. We are sure that had the eastern war not interrupted the mail service we would have been able to publish later information pertaining to European conditions.

When the first frenzied extras imparted that many Americans were stranded and in want in Europe we were mindful of the fact that some fifty of our members were abroad. The matter was taken up with the senior senator from Michigan but he assured us that consuls and ambassadors would care for all American subjects. At any rate we were prepared to aid those in need by loaning them the funds of our Society.

While on this subject of the eastern war we cannot help but draw our members attention to the fact that *The Journal* is a personal loser by reason of this struggle. The advertising contracts have been cancelled because these firms' supplies from Europe have been stopped. As they have all been valued patrons we regret that necessity has compelled them to curtail their expenses and to cut out their advertising.

The sudden cessation of drug importations from Europe, owing to the war, has been seized upon in certain circles as an occasion for materially advancing the prices of standard therapeutic specialties, in some instances as much as 100 per cent.

Schering & Glatz desire to advise the medical profession that not a single one of their medicinal specialties has been increased in price and will not be as long as present supplies last.

There is therefore, absolutely no reason why patients should be made to pay any more than usual for their products.

We want to see you in Lansing on September 9-10-11.

Word comes to us that the State Anti-Tuberculosis Society is handicapped in its work for lack of funds. The Society's chief source of income is from the sale of Christmas seals. The organization wishes to put to work experienced field workers and organizers. The budget for the coming year calls for three thousand dollars more than is in sight. We think that every physician in the state should appreciate the need of this organization and should give it their moral and financial support. They cannot better do this than by responding promptly to the letters that will be sent by the president of that organization asking them to join the Society and to remit the membership fee of one dollar. This is everybody's work, yet the labor and expense of the campaign are born by comparatively few. It is the duty of the medical profession to respond to this appeal and do its share.

Correspondence

Hotel Cecil, Strand, London, England,

July 25, 1914.

Dear Dr. Warnshuis:

Received your letter on arrival here yesterday, and was much pleased to get it. News from home is very welcome when one has been away from home a month. I have had some trouble with a throat cough since landing and while in Edinburgh and Glasgow felt so poorly that I made no attempt to visit the hospitals. I am getting mended up now and expect to put in a full week at clinics next week. After the clinic week is over I will send you something concerning them if I can think of anything to say.

We made rather a complete tour of Scotland; in addition to the usual places of visit by American tourists we went up the Caledonian Canal to Inverness and visited an uncle of Mrs. Dodge in Laggan, a glen in Inverness-shire off the line of railroad, where he has served as minister of the Church of Scotland for the past 33 years. Laggan is in the heart of the highlands and a very interesting region. The ministers are better situated there than in the country districts of America and so we found his auto awaiting us at the nearest point on the railroad, and by that means had an opportunity to observe the character of the roads in the thinly settled and mountainous region of Scotland. In the words of Harry Lauder "They w'd mae your mouth water." In fact, all through the country we have found excellent macadam roads. In the highlands where houses were miles apart splendid stone roads could be seen from the train at all points. When we reached the manse I spoke of the roads remarking upon their excellence. My uncle replied, "well the government is beginning

to give them some attention, we hope they will soon be better". "Why", I said, "they are of stone and absolutely smooth, how could you have them better?" "Oh", he replied, "they are well enough now but you ought to see them after a rain." "Well they don't break through do they?" Evidently that proposition was something unheard of to him so he replied that they get a lot of mud on top and dirtied the bodies of the auto and that now the government was taking notice this would be stopped. Well they stop it by tarring the surface. That is the universal first class road through southern Scotland and parts of England that we have visited, macadam with tarred surface.

As the roads are all built the present problem is simply to keep them up and that is done by bearing in mind the old proverb "A stitch in time". The material used is simply liquid tar. It costs per ton about 40 cents per hundred square feet, and retarring is done as soon as spots begin to show that the tarred surface is getting thin. Crushed stone is also left along the roads and every hole is repaired during its early stages. Of course the application of the same principle of repairs to our dirt and gravel roads would make conditions with us much more tolerable than they are.

In Warwickshire practically every strip of highway and every street and alley in the villages is macadamized and has a tarred surface. Stratford-on-Avon was in the midst of retarring operations which they told me had to be repeated yearly on main traveled roads. In summer the main streets of Stratford are passed over by fully as many vehicles as on any main road leading out of Detroit. This type of road constructions seems to have been universally adopted here for country roads and for most cities outside of the very large cities. I have seen also many such streets in London and many downtown streets have wooden blocks creasoted. Brick pavement is seen but rarely.

After "doing" Scotland we crossed to Belfast and I saw a little of Ireland going from Dublin to Holyhead, thence to Chester, a quaint old city built by the ancient Romans with the protective wall around it which has been preserved. It affords a promenade about two miles long with the present city on both sides of the wall. The shops of the city that are most fashionable are located on two streets of the old city, called the Rows, and are on the second floor, a continuous walk permitting passage from one to the other but along the fronts of the second story. From Chester to Stratford-on-Avon, where three days were devoted to Warwickshire driving out and back from Stratford.

Two old castles are mentioned in the guide book as possessing special interest in Warwickshire,—Kenelworth and Warwick. At Kenelworth we were charged six pence admission and found nothing but ruins, a few stone walls and one old watch tower, with no roofs to anything, being all that is left. It is not worth a six pence unless one is

possessed of sufficient imagination to enable him to to stand on the tower, look over the old outlines and spacious halls in which Leicester entertained Queen Elizabeth. Warwick Castle is a different proposition. Lord Brooke is owner, being an adherent of Cromwell. The castle met a far different fate than its neighbor Kenelworth which that doughty free booter destroyed. Warwick Castle is still in good condition and the owner needing the money a very tidy show business is conducted there. A very fair linguist passes through a half dozen large rooms that the family have no present need of and explains all about some VanDyke and near VanDyke portraits of sundry pleasant gentlemen and ladies of "ye olden times", who were nearly all beheaded by the same old Cromwell whose death mask also adorns one of the walls. Incidentally some old furniture is pointed out, some of it in a fair state of preservation, and all this you are charged 50 cents for, and permitted to buy all the postal cards you may wish at a penny each. We found more than fifty tourists going through and met a long string when we were leaving and concluded that it was a paying show.

Then we came to London. Living had been so cheap in Scotland, Ireland and upper England that we had come to the conclusion that life over here was "one grand sweet song" in which but moderate compensation was derived for supplying the necessities and many of the luxuries of life. A rude awakening took place in London. First at the theatre where more than New York prices are charged, and then you have to pay a sixpence for a measly advertising program. The first purchase of theatre tickets made one feel at home once more, and at the hotel the sign "American Plan" awakened memories of "The Pantlind" and so I took a "Manhattan," found it palatable and at once settled down and prepared to commence work getting back to an interest in things surgical.

The Americans are coming in rapidly and I will write you later about the congress.

Yours truly, W. T. DODGE.

July 25, 1914.

The registration rooms at the Hotel Cecil were open this afternoon for the Clinical Congress and program for Monday's clinics imparted. A very good arrangement for issuing tickets has been adopted and the first to come each afternoon will have his choice until the tickets for the most popular clinics are exhausted. Only tickets to the comfortable capacity of the various operating rooms will be issued. I had the pleasure of meeting Dr. Hutchinson of Grand Rapids, today. He has been here for some time and with him I attended the out patient department of St. Peters this afternoon and witnessed the examination work of Wm. Thomson Walker, who is an expert in cystoscopic work and in bladder and renal surgery. Mr. Walker is very courteous to visitors and afforded us abundant opportunity to examine his cases and

to personally use his cystoscopes. One point brought out, that is new to me, is that many cases of acute renal colic are due to kinking and obstruction of the ureter and not to calculi. One case came in that had previously been operated for pronounced hydro-nephrosis in which the cause was found to be an obstructed ureter from invagination into the pelvis of the kidney and consequent narrowing of the calibre. He effected a cure by splitting the ureter and passing sutures as in pyloroplasty. Dr. Walker also pointed out that urotopine is valueless as an urinary antiseptic unless the bladder urine is acid in reaction. I am convinced that Mr. Walker does a very high grade of work and any one doing genito-urinary work will do well to follow his methods.

July 27th.

Today I saw Mr. E. M. Corner, at Great Ormond Street Hospital in the morning, and Sir Arbuthnot Lane at Gray's in the afternoon. Mr. Corner had an inguinal hernia, appendicectomy, spina-bifida and talipes cases. He is a very nice operator and follows the essentials of asepsis closely, although many of the fine points observable in most American clinics are here noticeable by their absence. Mr. Corner uses no antiseptics on his hands but washes them vigorously in tap water. He does not remove his vest nor high starched collar, and neither does he perspire sufficiently to wilt the collar. He wears gloves and both he and his assistants avoid handling the wound or anything that comes in contact with the wound with their hands. Sir Lane performed two colectomies, one of them for pyloric obstruction without touching the pylorus. He believes that all disease except cancer is caused by the intestine stasis and that the cure is to short circuit and remove the then useless large bowel. He objects to the term Lane's kink or Jackson's membrane, or any other designation for which he calls normal peritoneal bands around the caecum. He removes the large bowel for goitre, rheumatoid arthritis, tuberculosis, or in fact for any disease except cancer. He presented skiagraphs of a case of tuberculosis of the lungs, one of the wrist and one of the mesenteric glands which he claims is rapidly recovering since the removal of the large bowel. A discussion of intestinal stasis is set down for Friday evening. At the Presidential meeting tonight the large hall in the Cecil was crowded and a most enjoyable session was held.

July 28.

The distribution of tickets for the following day's clinics commences at five p. m. The accommodations at all of the operating rooms is small as compared with those in our large American cities and to afford room for 1200 visitors here is a much greater task than to care for 3000 in New York. Consequently the rush for tickets at the most popular clinics is becoming strenuous. No favors are shown and the first to come are the first served.

This morning I saw Mr. Kellock at Middlesey. I saw Mr. Kellock and the backs of some of his assistants, but little else. He had hernias, genu valgum and cleft palate. He believes that the proper treatment of the sac is the great problem in hernia and places very few sutures in the abdominal wall, doing nothing at all with the cord. He divided the femur in the genu valgum case with a saw subcutaneously and applied a very rough splint to the leg. His aseptic technic was noticeable by its absence. As a contrast, in the afternoon Mr. Waugh at the Children's hospital exhibited a very fine technic and gave an exhibition of skilled surgical procedure. He had a twelve weeks old babe without a bladder, the ureters being exposed near the pubes, and performed a beautiful operation in transplanting them to the colon. Evidently his reputation was unknown to a great many for only eleven appeared in his audience, but as Mr. Stiles of Edinburgh, and Charlie Mayo were in the number, the element of quality existed to compensate for lack of numbers. He had several appendicectomies and one case of enlarged cervical glands. The glands were removed under local anesthesia, and one of the appendicectomies was attempted under spinal anesthesia, but it finally became necessary to give ether. He also took us through the wards and presented a large number of interesting cases.

July 29.

Mr. Bonney, at Chelsea, had a large clinic this morning presenting several hysterectomies, ovariectomies, a Cesarean section and perineorrhaphy. He is a very rapid operator and utilizes but one assistant, using the Reverdin needle and carrying the ligature material on spools attached to his wrists by means of rubber hands. Asepsis is thoroughly carried out. His perineorrhaphy does not follow the accepted American procedure of the present day as he does not take up the levator ani muscles and restore them to their proper position. His abdominal work is fine.

In the afternoon, at St. Peters, Mr. Freyan had two suprapubic prostatectomies and one litholpaxy. In the same room Mr. Thomson Walker did a prostatectomy, lithopaxy and removed a papilloma from the bladder. Freyan apparently gives little attention to asepsis but operates very rapidly and in each case removed the prostate within six minutes. He does a beautiful operation. Mr. Walker, on the other hand, is a very neat gentleman, operates with gloved hands and seemingly enucleated the prostate quite as easily as his colleague did with his bare hands. The removal of the papilloma, which was of large size, was very beautiful. He makes a large incision in the bladder and with special retractor gives a beautiful view of the interior of the organ, removing the papilloma under plain view and without hemorrhage of any account. He first passes sutures through the bladder wall outside of the papilloma and by this means makes

a practically bloodless operation. Dr. John Murphy and Mr. Stiles attended this clinic. A democratic spirit pervades the clinics and great surgeons like these men stand up in the back rows frequently and take their chance with the rest of us.

At St. Peters work was suspended at 3:30 while all hands partook of "tea" and "cigarettes." The afternoon "tea" habit here is generally observed. "Tea", however, may be coffee if one prefers it, and always includes sandwiches and cakes. It seems to be quite popular with the Americans.

At the general meeting this evening Dr. Charles Mayo read a paper and received an ovation, President Murphy introducing him as "Dr. Chas. Mayo of the world."

July 30.

This day has been spent at St. Thomas Hospital. In the morning Dr. Walter Tate presented several cases of hysterectomies and ovariectomies. He is a fine but slow operator and utilizes a large number of assistants. His cases presented no features of special interest. Mr. Wallace in the afternoon, presented cases of amputation of the breast and prostatectomy, also cystotomy for prostatic stone. He is a careful and painstaking operator. St. Thomas Hospital is a large institution on the Thames, opposite the houses of Parliament. There are eight large buildings besides the colleges buildings. They had 10,000 patients last year of whom only 600 were pay patients. The Florence Nightingale Training School for Nurses is connected with this hospital, famous as the first nurses' training school ever established in connection with a hospital. There are 260 student nurses and the course is of five years' duration. The operating rooms in this hospital are new, well constructed and afford accommodations for about fifty visitors, three or four rooms built in pairs so that visitors can easily pass from one to the other.

July 31.

In the morning the new Kings College Hospital was visited. It is not yet completed but a portion of it is in commission. It is considered a modern hospital and has fine operating rooms and good laboratories and X-Ray rooms. When completed it will accommodate 600 patients. Mr. T. P. Legg operated on a thyroid adenoma by partial removal of the gland and removed some cervical glands. In the afternoon I visited the London Hospital which has the most elaborate operating room facilities I have seen in London. An entire floor is devoted to operating rooms, anesthetizing rooms, etc. It was constructed with a special bequest of some 13000 pounds. Sir Frederick Ere had a very interesting clinics of gastric and duodenal ulcers for which he performed gastro-duodenostomy. His methods are much like the methods most followed in America. Operators here seem to in many cases be influenced by the traditions of the hospital with which they are connected. At Kings this morning the anesthetizer, who is quite an old man has held

the position for forty years, said that chloroform was often given, the A. C. E. mixture usually, ether alone rarely and local anesthesia never. He said the traditions of the hospital were opposed to local anesthesia with an air that such being the case the matter was settled. So in the matter of suture material, silk is quite generally used for all purposes, including skin closure and when cat gut is used it is generally chromicized, but at Sir Thomas iodized cat gut is used and is prepared in the hospital. Silk and silk worm gut are used when specially indicated.

As a general proposition asepsis is not carried out in the same way as it is in America. It may be just as efficient but does not appear so. A few men, however, as I have mentioned in notes are very scrupulous.

This evening practically wound up the Congress. Dr. Chas. Mayo was elected President last evening and tonight a very interesting discussion was held upon intestinal stasis. Tomorrow only a very few clinics are announced and only one prominent man appears on the list. The day will be devoted largely to leave taking. If a general war is not declared before tomorrow night we shall leave for Holland, Germany, Switzerland and France. War rumors are very alarming today.

With best regards to all friends,

Yours truly,

W. T. DODGE.

Deaths

Dr. Jacob J. Fabian, stricken with cramps while in bathing, was drowned in Reeds Lake, near Grand Rapids on July 28th. Dr. Fabian was secretary of the Kent County Medical Society. The burial took place in his old home in Alabama. Some seventy-five Grand Rapids physicians attended the brief funeral services that were held in Grand Rapids before the body was sent to his former home; the honorary and active pall-bearers were composed of members of the Kent County Society.

Dr. Dryden H. Lamb died at his home in Owosso August 4th of Brights disease. Dr. Lamb was a specialist of eye, ear, nose and throat diseases and was one of the most prominent and highly respected citizens of Owosso. He was ex-president of the Shiawassee County Medical Society.

Dr. Edgar Byron Smith, for years a practitioner in Detroit, died August 11th of septic poisoning, contracted through a cut on the hand while operating on a patient. Dr. Smith was

secretary of the faculty and professor in the Michigan College of Medicine & Surgery and president of the board of trustees of the Boulevard Sanitarium. He has been a member of the Michigan State Medical Society since the year 1906.

State News Notes

Dr. George A. Trizisky of Detroit recently underwent an operation for appendicitis and is reported as convalescent.

The Solvay General Hospital has been taken over by the Harper Hospital of Detroit and will be continued as a branch of the latter institution.

Dr. Angus McLean, Milton J. Robb and A. W. Blain of Detroit arrived home on Aug. 11 after having attended the Surgical Congress in London.

Dr. W. W. Lang, of Kalamazoo, who suffered an electrical shock from 3000 volts while using a telephone, is reported as having rapidly recovered.

Dr. D. McKeller of Hillsdale submitted to the amputation of his right leg on account of a septic infection. Our latest reports are that he is progressing satisfactorily.

Dr. Carl D. Camp of Ann Arbor announces that he has removed his office to 304 S. State St., Ann Arbor. His practice is limited to diseases of the nervous system.

Dr. W. Northrup of Grand Rapids announces that he has withdrawn from general practice and that in the future he will devote all his time to laboratory diagnosis. He is located in the Metz building.

Dr. A. E. Hinsdale of Bay City has accepted the appointment of professor of materia medica and therapeutics in the homeopathic department of the Ohio university.

The frame superstructure of the new \$300,000 U. B. A. Hospital in Grand Rapids is complete. It is estimated that the building will be ready for occupancy early in the fall of 1915.

Dr. Elizabeth Barrette of Kalamazoo has been appointed medical school inspector to succeed Dr. C. B. Fulkerson, resigned. Under Dr. Fulkerson's able direction the medical inspection of the schools of Kalamazoo has been raised to a high degree of efficiency.

Butterworth Hospital, Grand Rapids, has just completed and fully equipped a modern laboratory and has secured the services of a full time director.

The institution is also adding an addition that will be devoted entirely to caring for medical and surgical diseases of children.

Many of our Michigan physicians who attended the Clinical Surgeon's Congress in London and others who had planned spending some time in pursuing various lines of study on the continent have had their plans interfered with by reason of the outbreak of war and thus were compelled to return home. We have not learned of any who have undergone any particular hardships or been unreasonably detained.

Dr. H. Ostrander, president of the Michigan Society for the Prevention and Relief of Tuberculosis announces that the annual meeting of that organization will be held in Muskegon on Nov. 6 and 7. The meetings will be addressed by a number of speakers of national repute and the two days session will be filled with interesting discussions of the problems that confront the organization.

We failed to receive a report of the annual meeting of the Upper Peninsula medical society that was held on Aug. 11 and 12. The report of the meeting as well as a number of the papers that were read will appear in our next issue. We are sorry that we were compelled to go to press at such an early date and thus were prevented from publishing the proceedings in this issue. Dr. Guy L. Kiefer of Detroit attended the meeting as representative of the state organization.

Robert Louis Stevenson (himself a master of the art of omission) writes in one of his letters: "There is but one art—to omit! Oh, If I knew how to omit, I would ask no other knowledge. A man who knew how to omit would make an Iliad of a daily newspaper." When all medical writers have learned to omit the useless, the trite, the insignificant and the irrelevant, many manuscript editors will find their occupation gone; but private misfortune will pass unnoticed amid the general rejoicing. It takes a long while to learn to be brief; but, on the other hand, nothing will more effectively extend the average span of life than general mastery of the art of omission—in medical literature, at least. Nothing personal is intended by this but it might be well to bear the above in mind when discussing a paper at our annual meeting; the same thought may be also applied to our essayists.

County Society News

BENZIE COUNTY

On August 5th, as the guests of the Benzie County Medical Society, a number of members of the Manistee and Tri-County societies met in Beulah, on the shore of Clear Lake and enjoyed a most pleasant and profitable evening.

At 6:30 the members sat down to an enjoyable dinner which disposed of, was followed by the reading and discussion of papers that were both timely and practical. That real interest was manifest is witnessed by the fact that adjournment did not occur until midnight.

Dr. F. C. Warnshuis, our state secretary was present and made the acquaintance of those in attendance.

E. J. C. ELLIS, Secretary.

GRATIOT COUNTY.

The monthly meeting of the Gratiot County Medical Society was held Tuesday, August 4th at 2 p. m., and the following program was carried out:

Reading minutes of last meeting.

Clinic:

Paper: "The Conduct of Normal Labor in the Average Home." Dr. M. C. Hubbard.

Paper: "The Management of Abnormal Presentations. Including Post Partum Hemorrhage." Dr. F. J. Graham.

Paper: "Obstetrical Operations Including Forceps." Dr. I. N. Brainerd.

In the absence of Dr. R. G. Dean, President Monfort called upon Dr. W. M. Weller to outline the care of the pregnant woman before labor.

Dr. C. B. Gardner opened the discussion of all the papers.

The Society voted to have a basket picnic on Sept. 1 in place of the regular meeting.

E. M. HIGHFIELD, Secretary.

Wine of Cardui.—While the Chattanooga Medicine Company asserts that in the manufacture of Wine of Cardui no more alcohol is used than is necessary to preserve it, experiments indicated that the preparation contains only water-soluble constituents and that a non-alcoholic preparation might easily be prepared. Also, despite the owner's assertion that Wine of Cardui cannot be used as a tipple, large doses were taken experimentally with no observable effects other than those of alcohol; further, letters from physicians assert that the preparation is used habitually, evidently for its alcohol effects—probably unconsciously. The exploitation of Wine of Cardui is vicious and the public should be apprised of the facts (*Jour. A.M.A.*, July 18, 1914, p. 258.)

Vaccine and Serum in Hay-Fever.—A serum for the treatment of hay-fever is described in New and Nonofficial Remedies. Theoretically there can be no vaccine treatment of this disease for the reason that it is produced, not by bacteria but, by the pollen of various plants. The use of vaccines derived from the micro-organisms found in the nasal secretion are still in the experimental stage (*Jour. A.M.A.*, July 25, 1914, p. 340.)

OFFICIAL PROGRAM

49th Annual Meeting Michigan State Medical Society at Lansing, Ingham County

Sept. 9-10-11, 1914

OFFICIAL CALL.

The Forty-Ninth Annual Meeting of the Michigan State Medical Society will be held in Lansing, Ingham County, Michigan, on Thursday and Friday, September 10th and 11th, 1914.

The House of Delegates will convene at 8 a. m. on September 10th. The Council will meet in regular session on Wednesday evening, Sept. 9th, at 8 p. m.

The Sixth Annual Meeting of the County Secretaries Association will be held on Wednesday afternoon, Sept. 9th, at 2:30 p. m.

Guy Lincoln Kiefer, President.

Frederick C. Warnshuis, Secretary.

PLACE OF MEETING.

The General Session, the House of Delegates and all Scientific Sections will meet in the Capitol Building. The exhibitions will also be located in this building. The County Secretaries Association will meet in the Senate chambers on Wednesday afternoon, Sept. 9 at 2:30 p. m. The first session of the Council will be held in the parlors of the Downey House on Wednesday evening, Sept. 9th, at 8 p. m.

THE COUNCIL.

Chairman, William T. Dodge, Big Rapids.

Vice-Chairman, A. E. Bulson, Jackson.

Secretary-Ex-Officio, Frederick C. Warnshuis, Grand Rapids.

MEETINGS.

Wednesday, September 9th, at 8 p. m.

Thursday, September 10th, at 12 m.

Friday, September 11th, at 12 m.

HOUSE OF DELEGATES.

Chambers of the House of Representatives.

President, Guy Lincoln Kiefer, Detroit.

Secretary, Frederick C. Warnshuis, Grand Rapids.

By-Laws—Chapter IV, Section 1. Each component county society shall be entitled to send to the House of Delegates each year one delegate and one alternate for every fifty members, and one delegate for each major fraction thereof: but each county society holding a charter from this society, which has made its annual report as provided in the Constitution and By-Laws, shall be entitled to one delegate and one alternate.

FIRST SESSION, THURSDAY, SEPT. 10TH.

8.00 A. M. Sharp.

Order of Business:

1. Call to order by the President.
2. Roll Call.
3. Report of Committee on Credentials.
L. J. Hirschman, Chairman.
4. Reading of minutes of last Annual Meeting.
5. Report of the Council.
A. E. Bulson, Vice-Chairman, Jackson.
6. Report of the Committee on Legislation and Public Policy.
A. M. Hume, Owosso, Chairman.
7. Report of Committee on Public Health Education.
Walter H. Sawyer, Hillsdale, Chairman.
8. Report of Committee on Study and Prevention of Tuberculosis.
T. M. Koon, Grand Rapids, Chairman.
9. Report of the Committee to Encourage the Systematic Examination of the Eyes and Ears of School Children Throughout the State.
W. R. Parker, Detroit, Chairman.
10. Report of the Committee on Medical Education.
A. M. Barrett, Ann Arbor, Chairman.
11. Report of the Committee on Venereal Prophylaxis.
A. P. Biddle, Detroit, Chairman.

12. Report of Delegates to A.M.A.
L. J. Hirschman, Detroit.
 13. Report of the Committee on Specialties.
Emil Amberg, Detroit, Chairman.
 14. Report of the Committee on Fee Schedule.
C. H. Hitchcock, Detroit, Chairman.
 15. Election of Committee on Nominations.
The duty of this committee is to nominate:
 - (a) 1st, 2nd, 3rd and 4th Vice-Presidents.
 - (b) To nominate two delegates and two alternate delegates to the American Medical Association to succeed L. J. Hirschman and C. E. Boys.
 - (c) To fix the place of meeting for 1915.
- By-Laws—Chapter VI, Section 2. The House of Delegates shall elect annually, at its first meeting, a Nominating Committee of five from the House of Delegates; no two of whom shall be from the same Councilor District.
16. Appointment of Business Committee and other working committees by the President.
 17. Miscellaneous Business.
 - (a) Recommendations to the Council.
 - (b) Proposal of amendments to the Constitution and By-Laws.
 18. New Business.
 19. Adjournment to General Session.

SECOND SESSION, FRIDAY, SEPT. 11TH.

8 A. M. Sharp

1. Roll Call.
2. Reading Minutes.
3. Report of Business Committee.
4. Report of Appointed Committees.
5. Report of Committee on Nominations.
6. Election of Officers.
7. Unfinished Business.
8. Miscellaneous Business.
9. Adjournment *sine die*.

HOUSE OF DELEGATES.—DELEGATES AND ALTERNATES TO THE FORTY-NINTH ANNUAL MEETING.

Note.—The black-face type is that of the delegate; the other that of the alternate.

ALPENA—Branch No. 46

C. M. Williams, Alpena.
E. E. McKnight, Alpena.

ANTRIM—Branch No. 65

(One delegate.)

BARRY—Branch No. 26

G. W. Lowry, Hastings.
C. S. McIntyre, Woodland.

BAY—Branch No. 4.

(One delegate.)

BENZIE—Branch No. 59

C. P. Doyle, Frankfort.
E. J. C. Ellis, Benzonia.

BERRIEN—Branch No. 50

N. A. Herring Benton Harbor.
J. W. Kistner, Berrien Springs.

BRANCH—Branch No. 9

E. E. Hancock, Girard.
D. H. Wood, Coldwater.

CALHOUN—Branch No. 1

S. K. Church, Marshall.
Jas. T. Case, Battle Creek.

CASS.

Wm. C. McCutcheon, Cassopolis.
Herman L. Loupee, Vandalia.

CHARLEVOIX—Branch No. 37

(One delegate.)

CHEBOYGAN—Branch No. 58

W. F. Reed, Cheboygan
S. A. St. Armour, Cheboygan.

CHIPPEWA—Branch No. 35

F. G. Fox, Pickford.
H. E. Perry, Newberry.

CLINTON—Branch No. 39

J. B. Taylor, Ovid.
A. O. Hart, St. Johns.

DELTA—Branch No. 38

A. S. Kitchen, Escanaba.
G. W. Moll, Foster City.

DICKINSON-IRON—Branch No. 56

(One delegate.)

EATON—Branch No. 10

H. C. Rockwell, Dimondale.
C. D. Huber, Charlotte.

EMMET—Branch No. 41

A. E. Runyan, Harbor Springs.
J. J. Reyecraft, Petoskey.

GENESEE—Branch No. 24

W. G. Bird, Flint.
H. A. Stewart, Flint.
H. Cook, Flint.
H. D. Knapp, Flint.

GOGEBIC—Branch No. 52

C. E. Stevens, Ironwood.
W. J. Pinkerton, Bessemer.

GRAND TRAVERSE-LEELANAU. Branch No. 18

Frank Holdsworth, Traverse City.

GRATIOT—Branch No. 25

C. B. Gardner, Alma.
I. N. Brainerd, Alma.

HILLSDALE—Branch No. 3

Bion Whelan, Hillsdale.
H. H. Frazier, Hanover.

HOUGHTON—Branch No. 7.

A. I. Lawbaugh, Calumet.
A. F. Fischer, Hancock.

HURON—Branch No. 47

S. B. Young, Caseville.
A. E. W. Yale, Pigeon.

INGHAM—Branch No. 40

L. W. Toles, Lansing.
B. M. Davey, Lansing.
M. L. Holm, Lansing.
J. G. Rulison, Lansing.

IONIA—Branch No. 16

J. F. Pinkham, Belding.
G. A. Stanton, Belding.

ISABELLE-CLARE—Branch No. 54

A. T. Getchell, Mt. Pleasant.
C. D. Pullen, Mt. Pleasant.

JACKSON—Branch No. 27

C. D. Munroe, Jackson.
T. E. Hackett, Jackson.

KALAMAZOO—Branch No. 64

G. F. Inch, Kalamazoo.
C. E. Boys, Kalamazoo.
F. E. Penoyer, South Haven.
Malcolm Smith, Allegan.
A. S. Youngs, Kalamazoo.
L. A. Rogers, Galesburg.

KENT—Branch No. 49

T. M. Koon, Grand Rapids
J. D. Brook, Grand Rapids.
C. C. Slemons, Grand Rapids.

LAPEER—Branch No. 23

(One delegate.)

LENAWEE—Branch No. 51

A. W. Chase, Adrian.
O. Whitney, Jasper.

LIVINGSTON—Branch No. 6

H. G. Huntington, Howell.
B. H. Glenn, Fowlerville.

MACOMB—Branch No. 48

H. F. Taylor, Mt. Clemens.
V. H. Wolfson, Mt. Clemens.
J. M. Croman, Mt. Clemens.
H. G. Berry, Mt. Clemens.

MANISTEE—Branch No. 19

H. D. Robinson, Manistee.
J. A. King, Manistee.

MARQUETTE-ALGER—Branch No. 28

H. W. Sheldon, Negaunee.
A. W. Hornbogen, Marquette.

MASON—Branch No. 17

(One delegate.)

MECOSTA—Branch No. 8

Jos. McNeece, Morley.
H. B. Weaver, Mecosta.

MENOMINEE—Branch No. 55

T. B. Phillips, Menominee.
Edw. Sawbridge, Stephenson.

MIDLAND—Branch No. 43

Frank A. Towsley, Midland.
Gust Sjolander, Midland.

MONROE—Branch No. 15.

Wm. F. Acker, Monroe.
P. S. Root, Monroe.

MONTCALM—Branch No. 13

A. W. Woodburne, Entrican.
W. H. Lester, Greenville.

MUSKEGON-OCEANA—Branch No. 61

V. A. Chapman, Muskegon.
F. B. Marshall, Muskegon.

NEWAYGO—Branch No. 50

N. De Haas, Fremont.
Willis Geerlings, Reeman.

OAKLAND—Branch No. 5

Wm. McCarroll, Pontiac.
R. Y. Ferguson, Pontiac.

O. M. C. O. R. O.—Branch No. 11

C. C. Curnalia, Roscommon.
L. A. Harris, Gaylord.

ONTONAGON—Branch No. 66

(One delegate.)

OSCEOLA-LAKE—Branch No. 30

A. Holm, Leroy.
H. L. Foster, Reed City.

OTTAWA—Branch No. 32

D. G. Cook, Holland.
Wm. De Kleine, Grand Haven.

PRESQUE ISLE, Branch No. 63.

(One delegate.)

SAGINAW—Branch No. 14

Robt. McGregor, Saginaw.
A. R. McKinney, Saginaw.
W. A. DeFoe, Saginaw.
L. B. Harris, Saginaw.

SANILAC—Branch No. 20

Geo. S. Tweedie, Sandusky.
Jas. W. Scott, Sandusky.

SCHOOLCRAFT—Branch No. 57

S. H. Rutledge, Manistique.
Andrew Nelson, Manistique.

SHIAWASSEE—Branch No. 33

D. H. Lamb, Owosso.
T. B. Scott, Owosso.

ST. CLAIR—Branch No. 45

W. B. James, Port Huron.
S. K. Smith, Port Huron.

ST. JOSEPH—Branch No. 29

J. H. Moe, Sturgis.
D. V. Runyan, Sturgis.

TRI-COUNTY—Branch No. 62

W. B. Wallace, Manton.
S. C. Moore, Cadillac.

TUSCOLA—Branch No. 44

F. P. Bender, Caro.
B. C. Bradshaw, Mayville.

WASHTENAW—Branch No. 42

John A. Wessinger, Ann Arbor.
Theophil Klingman, Ann Arbor.
Conrad George, Jr., Ann Arbor.
Conrad George, Sr., Ann Arbor.

WAYNE—Branch No. 2

E. B. Smith, Detroit.
J. E. King, Detroit.
L. J. Hirschman, Detroit.
J. W. Vaughan, Detroit.
H. R. Varney, Detroit.
A. W. Blain, Detroit.
C. W. Stockwell, Detroit.
Fred Cole, Detroit.
W. D. Ford, Detroit.
Guy Connor, Detroit.
E. K. Cullen, Detroit.
J. B. Bell, Detroit.
John Dodds, Detroit.
Rollin Parmeter, Detroit.
G. P. Myers, Detroit.
F. B. Walker, Detroit.
P. M. Hickey, Detroit.
E. G. Martin, Detroit.
C. E. Simpson, Detroit.
M. V. Meddaugh, Detroit.
F. B. Tibbals, Detroit.
C. H. Oakman, Detroit.
J. Van Amberg Brown, Detroit.
R. L. Clark, Secretary, Detroit.

GENERAL MEETING.

House of Representative Chambers.
Thursday, September 10th,

10:00 A. M.

President, Guy Lincoln Kiefer, Detroit.
Secretary, Frederick C. Warnshuis, Grand Rapids.

1. Call to order by President.
2. Invocation. Rev. James S. Williamson.

3. Address of Welcome.

Governor Woodbridge N. Ferris.

4. Address of Welcome by Samuel Osborn, President Ingham County Society.
5. Response on behalf of the Society by President, Guy L. Kiefer.
6. Report of Committee on Arrangements.
E. W. Toles, Lansing.
7. Report of House of Delegates.
F. C. Warnshuis.
8. Annual Address of the President. "The Modern Practice of Medicine." Guy Lincoln Kiefer.
9. Address by invited guests:
Dr. M. P. Ravenel, Madison, Wis.
Dr. Cressy L. Wilbur, Chief Vital Statistician, New York Board of Health.
Dr. Victor C. Vaughan, Sr., Ann Arbor.
Hon. Judge Alfred Murphy, Detroit.
Rabbi Leo M. Franklin, Detroit.
Dr. Walter H. Sawyer, Hillsdale.
10. The Origin and Prevention of Mal-Practice Cases.
Herbert M. Barbour, Esq., Detroit.
11. Miscellaneous Business. Under this head there will be a general discussion of questions of medical economics. The opportunity is presented to every member to bring before the Society any subject of general interest, either by informal discussion or formal resolution.
12. Nominations for President for 1914-15.
13. Adjournment.

SECOND GENERAL MEETING.

Friday, September 11th,

11:30 A. M.

1. Reading of Minutes.
2. Unfinished Business.
3. Report from the House of Delegates.
4. Miscellaneous Business.
5. Announcement of result of ballot for President.
6. Introduction and Installation of the President-elect.
7. Resolutions.
8. Adjournment *sine die*.

SCIENTIFIC SECTION MEETING.

By-Laws—Chapter III., Section 3. Except by special vote the order of exercises, papers and discussions as set forth in the official program shall be followed from day to day until it has been completed. No paper shall be read by title nor read by an other person than its author, except as a result of sickness of the author, or by the unanimous vote of the Section to which it belongs.

Sec. 4. No address or paper before the Society, except that of the President, shall occupy more than fifteen minutes in its delivery; and no mem-

ber shall speak more than five minutes or more than once on any subject.

Sec. 5. All papers read before the Society shall be its property. Each paper read shall be immediately deposited with the Secretary of the Section.

SECTION ON GENERAL MEDICINE.

Chairman—M. A. Mortensen, Battle Creek.
Secretary—Benj. A. Shepard, Kalamazoo.

First Session Thursday Afternoon, Sept. 10.
1:45 P. M.

(The Secretary of the Section will collect all papers as soon as they are read).

- 1. Chairman's Address.
Benj. A. Shepard, Kalamazoo.
- 2. "Gastric and Duodenal Ulcer."
E. L. Eggleston, Battle Creek.

SYNOPSIS:

Etiology—A review of the later theories. No one theory is sufficient to account for these cases as the causes are probably many. Insufficient attention to dietetic errors. The role played by functional nervous disturbance.

Treatment—In their primary state gastric and duodenal ulcer respond readily to treatment. They are surgical only when complications exist or in their chronic state. The great advantage of early diagnosis and treatment. The necessity of insisting upon a careful regime to be followed for months, if not for years, following the initial treatment.

- 3. "South Haven's Experience in Calcium Hypochlorite Treatment of Lake Water."
Francis C. Pcnoyer, South Haven.

SYNOPSIS:

Comparison of typhoid rates in lake and inland cities, United States and foreign countries. Great Lakes as etiologic factor in typhoid fever in America. Duties of the profession in educating the public. Typhoid rates in South Haven before and after treating water. Description of system and difficulties encountered. Establishment of municipal laboratory and report on daily findings. Purification of private supply.

- 4. "Practical Methods for Determining Cardiac Irregularities." Hugo A. Freund, Detroit.
- 5. "Roentgenology of the Heart."
Lantern Slide Demonstration.
A. W. Crane, Kalamazoo

SYNOPSIS:

The Roentgen factors in the examination of the heart are: (1) Position of heart within thorax; (2) Form of whole and

relative form of each chamber; (3) Size of whole and relative of each chamber; (4) Presence of fluid in pericardial sac; (5) Heart movements. Pulsations of each auricle and ventricle from specified angles. Observations on simultaneous movements of two, three or four chambers compared with polygraphic tracings and electro-cardiograms. Simultaneous auscultation and the visualization of the pulsations of the cardiac chamber. The X-Ray screen in the dark-room is the moving picture screen of clinical diagnosis.

Second Session, Friday Morning, Sept. 11th.
9 A. M.

- 6. "The Non-operative Management of Surgical Affections of the Prostate Gland."
Arthur E. West, Kalamazoo.

SYNOPSIS:

Importance of this phase of treatment. Necessary equipment. A consideration of the various pathological conditions encountered and measures for their relief.

- 7. "Syphilis of the Nervous System."
Wesley Taylor, Detroit.

SYNOPSIS:

Prevalence of Syphilis. Speculation as to its origin and as to its introduction into Europe as well as into Asia and other parts of the world. As a disease of animals and its communication to men and vice-versa. Immunity acquired through repeated inoculations, and virulent in virgin races.

Present status of our knowledge regarding the etiology of the malady, due to inoculation into animals. Tests in use to determine its presence or absence in mankind.

Syphilis in locomotor ataxia or locomotor ataxia merely a form of syphilis. Paresis merely a manifestation of syphilis of the brain.

Syphilis in progressive muscular atrophy, in certain forms of neurasthenia and epilepsy. Hydrocephalus and congenital idiocy probably due to syphilis in the parents, as well as congenital mental deficiencies. Myelitis, neuritis, tumors, apoplexy, etc. in relation to the lues.

Syphilis and the alien races, and why they escape the effects of the so-called "para-syphilitic" diseases.

The Wasserman reaction, of the blood—of the cerebro-spinal fluid. The Noguchi test. The bearing of these tests on the treatment of syphilis and allied diseases.

8. "The Serology and Treatment of Luetic Disease of the Nervous System."

Chas. W. Hitchcock, Detroit.

SYNOPSIS:

Discussion of laboratory methods and their needs, The Wasserman, Noguchi, Nonne-Apelt, reactions. The spinal fluid; the modern treatment of syphilis of the nervous system, especially tabes, taboparesis, and paresis. The therapy of Salvarsan.

9. "Biological Foundation for Mendel's Laws of Heredity."

Prof. L. H. Harvey, Kalamazoo.

SYNOPSIS:

The individual organism is an aggregate of determinate characteristics. These heritable entities are designated Unit characters. They obey a definite principle in transmission known as Mendel's law. This law has its foundation in the cytological processes of gametogenesis. By means of slides unit characters and their behavior will be illustrated, the law of Mendel developed, gametogenesis and segregation shown and certain conclusions as to the social application of these facts presented.

Third Session, Thursday Afternoon, Sept. 11.

1:45 P. M.

Election of officers.

10. "The Early Diagnosis of Tuberculosis."

E. B. Pierce, Howell.

SYNOPSIS:

In spite of the universal agitation against tuberculosis, the question of a diagnosis sufficiently early to enable the patient to take up the means of cure, when the prognosis is decidedly favorable, still retains its important position.

The history, physical examination and special examinations present the data which must be considered.

11. "Infantile Sensitization to Egg Albumen."

Herbert M. Rich, Detroit.

SYNOPSIS:

Relation to general subject of anaphylaxis. Related to clinical conditions. Typical case histories. Influences of heredity. Diagnosis and treatment. Importance of Recognition. Bibliography.

12. "The Treatment of Graves' Disease Based on Specific Biologic Methods."

M. M. Portis, Chicago.

SYNOPSIS:

Various theories to explain the origin of exophthalmic goitre; pathology and pathological chemistry found in this disease; general treatment; treatment with sera.

13. "The Roentgen Evidences of Cholelithiasis." (Lantern Slide demonstrations.)

James T. Case, Battle Creek.

SYNOPSIS:

More than one hundred cases in the writer's experience have given definite shadows on the Roentgenogram. Probably half the cases of cholelithiasis will give a diagnostic shadow. Consideration of statistics. Technical considerations. Other valuable Roentgen evidence in connection with barium meal even when the gallstones are of such composition that no shadows are cast by the X-Rays. Conclusions regarding the visibility of gallstones and the value of the X-Ray method of searching for them.

SECTION ON SURGERY.

Chairman—A. M. Campbell, Grand Rapids.

Secretary—A. M. Stirling, Detroit.

First Session, Thursday Afternoon, Sept. 10.

1:45 P. M.

(The Secretary of the Section will collect all papers as soon as they are read).

1. "Benign Tumors of the Stomach." Chairman's address. A. M. Campbell, Grand Rapids.

Discussants 1. V. L. Tupper, Bay City.

2. Alexander Blain, Detroit.

2. "Skull Fractures." Frank B. Walker, Detroit.

Discussants 1. C. Robbins, Bay City.

2. H. N. Torrey, Detroit.

3. "Exophthalmic Goitre."

Neil J. MacLean, Winnipeg.

Discussants 1. R. J. Hutchinson, Grand Rapids.

2. Rolland Parmeter, Detroit.

4. "Ileus."

Raymond C. Andries, Detroit.

Discussants 1. A. I. Lawbaugh, Calumet.

SYNOPSIS:

Discussion of the causes that produce the grave condition of a patient suffering with ileus. When death occurs to what is it directly due?

In peritonitis when does ileus usually appear and if left undisturbed how soon will it prove fatal. Is there a difference between ileus with peritonitis and simple post-operative ileus?

The question of treatment: The different methods in vogue; a comparison of the manner in which nature produces a cure and the method advised for treatment of these cases.

A report of some cases of post-operative ileus and ileus accompanying peritonitis.

Second Session, Friday Morning, Sept. 11.

9 A. M.

5. "Gastro-enterostomy." Max Ballin, Detroit.
Discussants 1. R. C. Stone, Battle Creek.
2. Walter Vaughan, Detroit.
6. "Appendicitis." C. D. Brooks, Detroit.
Discussants 1. C. D. Munro, Jackson.
2. W. Ballard, Bay City.
7. "Renal Calculi." Daniel Eisendrath, Chicago.
Discussants 1. Angus McLean, Detroit.
2. F. B. Robbins, Detroit.
8. "Surgical Treatment of Facial Paralysis."
E. H. Beckman, Rochester, Minn.
Discussants 1. R. B. Canfield, Ann Arbor.
2. C. W. Hitchcock, Detroit.
9. "Two Cases of Kidney Fracture Without Injury
of Skin." F. B. Marshall, Muskegon.
Discussants 1. J. B. Kennedy, Detroit.

Third Session, Friday Afternoon, Sept. 11.

1:45 P. M.

Election of officers.

10. "Surgery of the Sigmoid."
L. J. Hirschman, Detroit.
Discussants 1. J. A. McMillan.
2. H. J. Vanden Berg, Grand Rapids.
11. "Intestinal Stasis."
W. Seaman Bainbridge, New York City
Discussants 1. R. Peterson, Ann Arbor.
2. J. H. Carstens, Detroit.
12. "Perforating Ulcers of the Stomach and
Duodenum." Geo. E. Potter, Detroit.
Discussants 1. R. E. Balch, Kalamazoo.
2. B. C. Davey, Lansing.
13. "Symposium. Cystoscopic Diagnosis."
1. Fred H. Cole, Detroit.
2. Wm. J. Cassidy, Detroit.
3. Wm. E. Keane, Detroit.

SYNOPSIS:

Perforating gastric duodenal ulcers, pathological classification of a perforated chronic indurated gastric duodenal ulcer. Acute, sub-acute and chronic. Symptoms during 1st and 2nd hours following perforating. Early diagnosis. Treatment. Summary of eight cases.

SYNOPSIS:

The brilliant advances made in surgery of the bladder tumors has brought hope to a class of cases that but little was done for in the past. To give these cases their proper chance for cure we must diagnose early. With cystoscope we can alone be positive with what type of tumor we are dealing with and the earlier the case is seen the better is the chance.

SECTION OF GYNECOLOGY AND OBSTETRICS.

Chairman, C. E. Boys, Kalamazoo.

Secretary, Walter M. Manton, Detroit.

First Session, Thursday, Sept. 10th.

1:45 P. M.

(The secretary will collect all papers as soon as they are read.)

1. Significance of the Serum Reaction in the Diagnosis of Pregnancy. R. G. Owen, Detroit.

SYNOPSIS:

Sources of error in collecting blood specimens and conserving the same. Reports of different methods of technic.

2. The differentiation of the Degree of Dilatation of the Os Externum during Labor by Extra-Vaginal Examination. W. E. Welz, Detroit.

SYNOPSIS:

Importance of few or no internal examinations during labor. Physiology of dilatation of lower uterine segment. The contraction ring. Method of palpating externally during labor. Personal experiences with the method. Conclusions.

3. The Application of the Obstetrical Forceps. John M. Bell, Detroit.

SYNOPSIS:

Development of the instrument. Indications and contra-indications for use. Methods of applying. The rational exertion of traction. Summary.

4. The Child During the Early Months of Life Compared with the Child at Birth. Clara Davis, Lansing.

SYNOPSIS:

Importance of immediate care following delivery. Problems of early hygiene. Study of statistics.

Second Session, Friday Morning, Sept. 11th.

9 A. M.

5. Gonorrhoea in Women. C. Hollister Judd, Detroit.

SYNOPSIS:

Its recognition during pregnancy and effect upon puerperium. Bacteriologic and clinical diagnosis. Points on pathology. Different methods of treatment.

6. Toxemias of Pregnancy. F. C. Goldsborough, Buffalo, N. Y.

SYNOPSIS:

Differentiation of uremic and eclamptic toxemias.

7. Puerperal Eclampsia. George Kamperman, Detroit.

SYNOPSIS:

The treatment by combination of with Stroganov's method. Report of cases. Significance of "intracurrent

eclampsia". A resume of the work done at the Zweifel Clinic, where non-active measures are used in preference to active obstetrical methods. Technic and results of treatment, and a comparison with the results obtained by active obstetrical proceedings.

8. Discussion of some unusual cases.
Rowland Webb, Grand Rapids.
9. Gynecology. F. W. Marlow, Toronto, Canada.

Third Session, Friday Afternoon, Sept. 11.

1:45 P. M.

Election of officers .

10. Chronic Obliterative Appendicitis.
Wm. F. Metcalf, Detroit.

SYNOPSIS:

Its differential diagnosis. Relation to acute attacks. .

11. Gynecology. Channing W. Barrett, Chicago.
12. Significance of Uterine Bleeding.
H. Wellington Yates, Detroit.

SYNOPSIS:

Hemorrhage in relation to age. Importance of exact diagnosis. An imperative call for early treatment.

13. Carcinoma of the Breast.
Geo. M. Todd, Toledo, Ohio.

SYNOPSIS:

Age of occurrence with relation to uterine carcinoma. Present day opinions regarding treatment. (Lantern slides illustrating operative procedures.) Summary.

SECTION ON OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

Chairman, **Charles H. Baker, Bay City.**
Secretary, **Wilfrid Haughey, Battle Creek.**

(The Secretary of the section will collect all papers as soon as read.)

First Session, Thursday, Sept. 10.

1:45 P. M.

1. Chairman's Address.
Charles H. Baker, Bay City.
2. Squirrel Plague Conjunctivitis.

Derrick T. Vail, Cincinnati, O.

(An entirely new ophthalmic entity, proven by unmistakable laboratory experiments. The case was a young man, "a meat-cutter" in a restaurant in Cincinnati, who became infected with the germs of Squirrel Plague in his left eye, presenting an unusual ophthalmic picture—One lantern slide.)

Discussion: Walter R. Parker, Detroit.

3. Conservation of Vision.

E. W. E. Paterson, Grand Rapids.

Discussion: Otto T. Ricker, Cadillac.

4. Resection of the Inferior Turbinate by Freer's Flap Method. Otto T. Freer, Chicago, Ill.

SYNOPSIS.

Distention of the Inferior Turbinate with blood the commonest cause of nasal obstruction. Flap resection of this turbinate by the author's method reduces it to proper size, preserves its moistening function, and leads to quick healing, because cut bone is enveloped in coverings of mucous membrane. Description of the operation as perfected by the author's experience.

Discussion: Flemming Carrow, Traverse City.
Robert W. Gillman, Detroit.

5. Suppurative Ethmoiditis.

Stanley G. Miner, Detroit.

Second Session, Friday, Sept. 11th.

9 to 11:30 A. M.

1. Symposium: Infection in and from the Upper Air Passages.

I. Bacteriology and Bacterin Therapy of the Upper Air Passages.

Anna Odell, Detroit.

II. Infections from Zymotic Fevers.

G. A. Bulson, Detroit.

III. Influenza, Coryza, Seasonal Infections, Etc.

Louis J. Goux, Detroit.

IV. Internasal and Pharyngeal Infection in Relation to the Eye and Ear.

E. P. Wilbur, Kalamazoo.

V. Acute and Chronic Sinusitis of Nasal and Pharyngeal Origin.

Ferris N. Smith, Grand Rapids.

Discussion: Bert R. Shurley and Eugene Smith, Detroit.

11:30 Adjourn to General Session.

Third Session, Friday Sept. 11.

1:45 P. M.

Election of Chairman for 1915.

1. Suppuration in the Middle Ear, Following Contagious Diseases. J. M. Robb, Detroit.
Discussion: V. C. Chapman, Muskegon.

2. Physiological Physics in Relation to the Eye and Ear. Austin F. Burdick, Lansing.

Discussion: D. Emmet Welsh, Grand Rapids.

3. Hemorrhage from the Ear.

Wallace E. Newark, Charlotte.

Discussion: M. L. Cushman, Lansing.

COUNTY SECRETARIES ASSOCIATION.

Sixth Annual Meeting.

Wednesday Afternoon, Sept. 9th,

2:30 P. M.

Capitol Building.

President—C. T. Southworth, Monroe.

Secretary—C. B. Fulkerson, Kalamazoo.

Order of Business.

1. Call to order and roll call.
2. President's address.
3. Address by President of the State Society.
Guy Lincoln Kiefer, Detroit.
4. "Is the Physician justly paid for his Services? If not how can we increase his Income?"
Clarence E. Simpson, Detroit.
Discussion: A. F. Kingsley, Battle Creek.
R. L. Clark, Detroit.
5. The Public Responsibilities of the County Society.
Frederick R. Green, Chicago, Ill.
Discussion: J. J. Murphy, Pontiac.
G. W. Trumble, Bay City.
6. The Type of Program that is of the Greatest Value and Creates the Greatest Interest and its Presentation.
Theodore A. Felch, Ishpeming.
To be read in absentia.
7. Organized Efforts.
Frederick C. Warnshuis, Grand Rapids.
Discussion: C. B. Fulkerson, Kalamazoo.
F. M. Huntley, Lansing.
8. What a Councilor can do to Aid his Medical Society.
W. J. Dubois, Grand Rapids
Discussion: Arthur M. Hume, Owosso.
A. E. Bulson, Jackson.
9. Shall the Secretaries Association meet bi-annually? General Discussion.

The Council of Michigan State Medical Society will give complimentary dinner to County Secretaries at Downey House 5:30 p. m.

Roll call of secretaries.

Informal discussion by Councilors and County Secretaries.

Every County Secretary should be present himself and see to it that his Councilor attends this meeting.

Councilors and Secretaries have mutual responsibilities in Medical Society work. Hence a meeting of this type should be greatly beneficial.

C. B. Fulkerson, Secretary.

REGISTRATION.

The members are requested to register as soon as possible after their arrival. The Registration Bureau will be located in the Capitol Building. Upon registration each member will receive an official program, badge and announcements of all details and arrangements. A general information bureau will also be conducted in connection with the registration bureau.

ENTERTAINMENT.

The Reception Committee will meet all incoming trains with automobiles and so far as possible convey the guests to their hotels.

Wednesday evening at eight o'clock the profession of Lansing will meet the visitors at an informal reception and smoker in the parlors of the Hotel Downey.

Thursday 4:00 p. m. Automobiles leave Capitol Building with those who desire a trip through the Big Reo automobile factory. 4:15 automobile tour of inspection of Michigan Agricultural College, State Industrial School, Michigan School for the Blind and other points of interest about the city.

Thursday 6:00 p. m. President's reception in parlors of Masonic Temple.

Thursday 7:00 p. m. Complimentary dinner in banquet hall of Masonic Temple given by the Profession of Lansing followed by spicy program of short talks, musical and vaudeville numbers to which all members and ladies are cordially invited. An enjoyable evening is assured.

FOR THE VISITING LADIES.

Thursday afternoon at two o'clock the ladies will be entertained at the beautiful new Women's Club House by the ladies of the Lansing profession and the Ingham County Nurses Association. At four o'clock they will join the doctors in an automobile trip about the city and in the evening at the reception and banquet. The doctors' wives are especially invited to attend this meeting of the State Society and are promised a pleasant visit.

HOTELS IN LANSING.

Hotel Downey, European. \$1.50 to \$4.00. Capacity 300.

Hotel Wentworth. European. \$1.00 to \$2.00. Capacity 500.

Hotel Butler. European. \$1.00 to \$2.00. Capacity 100.

Hotel Fleming. European. \$1.00 to \$2.00. Capacity 50.

Hotel Reogrand. American. \$1.50 to \$2.00. Capacity 50.

Hotel New Digby. American. \$2.00. Capacity 50.

The Committee on Hotels will also have a list of rooms in private residences and those who desire such accommodations may secure them by applying at the Registration Bureau.

Book Reviews

DISEASES OF THE RECTUM AND COLON AND THEIR SURGICAL TREATMENT. By Jerome M. Lynch, M.D., Professor of Rectal and Intestinal Surgery, New York Polyclinic; attending Surgeon, Cornell Dispensary; Fellow of the American Proctologic Society, New York Gastro-Enterological Society, etc. Octavo, 583 pages, with 228 engravings and nine colored plates. Cloth, \$5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

Lynch on Diseases of the Rectum and Colon will undoubtedly take its place as the leading work on this subject in the English language. Its text is excellent throughout, and presents much that is new and useful. The systematic arrangement and the use of heavy type for center and side headings make it easy to find any subject quickly. Its numerous illustrations are unusually large and clear, and are evidently the work of an artist of rare ability. The volume has a sumptuous appearance, which is in keeping with the high literary standard of the work. The author has addressed his book particularly to those who have not attained well-rounded experience in rectal and colonic surgery, and, as the needs of each reader are different, in order to cover them all, he has embraced the entire field, and has discussed the subject in full detail. He has endeavored to prepare the reader in advance to meet those many things which, though apparently trifling, are generally left to his resourcefulness, and may either make or mar an operation. The book also includes the preparation of the patient, the after-treatment, complications that may occur and how to handle them. It also gives cautionary advice as to mishaps to be avoided. In short, it is a literary and pictorial presentation of the best modern technic, and will be of great value to both the practitioner and specialist.

There is no question but that if the general practitioner gave this subject more of his attention and made a determined effort to become more thoroughly familiar with diseases of the rectum and applied to them modern treatment that these patients would not drift in the hands of questionable and advertising specialists. This work will enable every practitioner to acquire reliable and trustworthy knowledge and we heartily recommend this book to them.

TEN SEX TALKS TO BOYS. (Ten years and older) by Irving David Steinhardt, M.D. Instructor in Clinical Surgery and Assistant Surgeon, Cornell University Medical School. Twelve illustrations. Cloth, 188 pages; J. B. Lippincott Co., Philadelphia. Price \$1.00.

Is there a boy in your family? Have you a son, a brother, a nephew or cousin—"just a boy" or any degree of relationship to you? What do you want that boy to be?

Ask yourself whether you wish this boy to have

any kinship of nature or fortune with the men of the street corner, the saloon, the dark places of the earth—men from whom all self-respecting persons turn in disgust?

What are you doing to safeguard him against it? Every boy has a hundred temptations to his sister's one. If it is of the highest importance, as many authorities agree, that our girls should be taught knowledge that will protect them from danger, it is at least equally so that our boys should not be wantonly sacrificed to evil, in their inexperience and ignorance of the dangers of the world.

In "Ten Sex Talks to Boys," Dr. I. D. Steinhardt has put in the simplest, most straightforward and wholesome way, the knowledge that would hold back ninety-nine out of 100 boys from evil courses, if it were given them at the right time. Such men as Judge Lindsey, of national fame as a savior of neglected boys and girls, have set the seal of approval upon this book. The Judge says, in part: "It is little short of a crime in this day and age to withhold instruction from youth on this important subject."

If you would have your boy become a manly man, keep him a manly boy. All of us want our boys to be manly men. But we go about making them such in a very strange way. Many of us deliberately allow them to walk in evil ways—to "sow their wild oats"—to become unfitted morally and physically to become manly men. We have a vain faith that after the wild oats are sown, the man can again become pure of heart, upright of soul, manly and strong, when he has been none of these things during the years when his character was forming. That the faith is vain, is proved in our insane asylums, hospitals, every physician's consulting room, and in thousands of lives darkened by disease, disgrace and death.

Give your boy the protection of pure knowledge offered by Dr. Steinhardt's book, that he may turn from the perversion of truth in manly scorn when it is offered him by the emissaries of evil. There is nothing in this book that will weaken his love of the good, the pure, the reverence he instinctively feels for womanhood, the guard he sets in his thoughts about every good girl who is near or dear to him. *Protect your boy*—and do it now—before the first whisper of temptation grows loud in his ears—before his footsteps have taken hold upon moral and physical perdition, which they may never retrace to the world of manly men!

This book should be in every physician's library and recommended to parents.

A TEXT BOOK OF MEDICAL DIAGNOSIS. By James M. Anders, M.D., Professor of the Theory and Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College of Philadelphia and L. Napoleon Boston, M.D., Professor of Physical Diagnosis, Medico-Chirurgical College, Philadelphia. Second edition thoroughly revised. Octavo of 1248 pages, 500 illustrations, some in colors. Philadel-

phia and London. W. B. Saunders Company, 1914. Cloth, \$6.00 net; Half Morocco, \$7.50 net.

The profession is here given a second and thoroughly revised edition of a work that in the beginning was written at the repeated solicitation of practitioners and students. This volume enables the reader to gain a knowledge of disease by furnishing him with an improved method of determining clinical features so that all the symptomatic phenomena in a given case may be collected with ease and certainty. Mention must be made of the summary of the diagnostic features of each disease and the methods of laboratory diagnosis.

The author's name at once stamps it as a recognized authority. It is a most practical book, the outcome of a large practical experience, clear, well up-to-date. Its arrangement is good; illustrations and colored plates are clear and enhance the value. It is the work that belongs on every physician's desk. We predict a greater reception for it than was accorded the first edition.

A TREATISE ON CLINICAL MEDICINE. By William Hanna Thomson, M.D., LL.D., formerly Professor of Practice of Medicine and of Diseases of the Nervous System in the New York University Medical College; Ex-President of the New York Academy of Medicine, etc. Octavo volume of 667 pages. Philadelphia and London. W. B. Saunders Company, 1914. Cloth, \$5.00. Half Morocco, \$6.50.

This is an excellent volume that considers those subjects which most concern a physician when he deals with the sick. The meaning of certain common but always important symptoms is clearly explained so that the reader is enabled to thoroughly understand them. Forty pages are consumed in pointing out the significance of common but important symptoms such as pain, cough, maciation, dyspnea, edema, and vomiting. Then follows an excellent chapter on the use of remedies, how they can be conveniently classified according to their special applications.

There then follows a section devoted to diseases caused by micro-organisms and the last section of the volume deals with diseases of particular organs and tissues.

A most practical work that is bound to be of inestimable value to the owner. I know of no book so well adapted to the general practitioner.

CRILE AND LOWER'S ANOCI-ASSOCIATION. By George W. Crile, M.D., Professor of Surgery, School of Medicine, Western Reserve University, Cleveland; and William E. Lower, M.D., Associate Professor of Genito-Urinary Surgery, School of Medicine, Western Reserve University, Cleveland. Octavo of 259 pages, with original illustrations. Philadelphia and London. W. B. Saunders Company, 1914. Cloth, \$3.00 net.

Here is a volume for which we have waited long and now that it is obtainable we predict its welcome and eager reception.

It contains in part one, a statement of the Kinetic Theory of Shock and the principle of Anoci-Association and a summary of a long series of experiments in the form of monographs on: Surgical Shock, Surgery of the Respiratory System, Problems Relating to Surgical Operations. The Blood Pressure in Surgery and Hemorrhage and Transfusion. Part two is the description of the application of the Kinetic Theory to the technic of surgical operations.

The work is a practical presentation of the subject. It is a mint of information. There is nothing left out that might be desired by anyone desirous of familiarizing himself with the subject. Its general make up illustrations and typographical construction add to its value and increase one's admiration for the volume.

DISEASES OF THE BONES AND JOINTS. By Leonard W. Ely, M.D. Associate Professor of Surgery, Leland Stanford Junior University, San Francisco, Cal. Sextodecimo: 220 pages, 94 illustrations. Surgery Publishing Co., New York. Price, cloth, \$2.00.

The unusual interest now manifested by the profession in Acute and Chronic Arthritis, as well as other forms of Bone and Joint Diseases makes this book particularly timely.

Prof. Ely is particularly well equipped from experience to present an authoritative work, having specialized in this particular branch of surgery for years.

This book is intended primarily for the general practitioner, but instead of furnishing that long suffering and very important person with a mass of details, and with many methods of treatment from which he may choose, the book lays down broad general principles, with the evidence upon which they are based, and then shows how these principles may be applied.

In a brief terse way, it presents the Anatomy, Physiology and Pathology of Bones and Joints, Acute and Chronic Arthritis of various types, Ankylosis, Diseases of the Shafts, Acute Osteomyelitis, Chronic Inflammations in the Bone Shaft, New Growths in Bone, etc.

The profuse Photo-Micrographs with other illustrations aid materially in placing up to the eye of the reader the contents of the book and the marginal side-heads, printed in contrasting colors, permits of ready reference.

It is a book which will be much appreciated by the general practitioner and can be read with the assurance that it presents valuable instructions from an authoritative source upon a subject where much light is needed.

GUIDING PRINCIPLES IN SURGICAL PRACTICE. By Frederick-Emil Neef, B.S., M.L., M.D. Adjunct Professor of Gynecology, Fordham University School of Medicine, New York City. Sextodecimo: 180 pages. Surgery Publishing Co., New York. Price, cloth, \$1.50.

The author answers herein some of the questions

which present themselves to the general practitioner and surgeon, particularly in the beginning of his career, during the period in which he formulates for himself the rules that are likely to direct him in his future work.

The viewpoint is based on clinical studies in the operating room and at the bedside of the patient. The book covers the practical points in the preparation of the patient for an operation, the arrangement of the operating room, the important relations between the surgeon and his anesthetist, the assistant, the family physician, the nurse during the course of the operation, also the after care of the case.

Other chapters in the book cover such important considerations as Sterile Washes and Wound Dressings. Sterilization of utensils and Instruments for the operation. The Surgeon's Hands. Wound Healing and Scar Formation, Asepsis, Suture Material, Anesthesia, Incision, the Course of the Operation, Care of the Patient after Operation, the Treatment of Unclean Wounds, in fact, within this book of 180 pages will be found those very necessary essentials that guide in the successful handling of operative work.

The mechanical features of the book are superb, presenting throughout marginal headings in contrasting ink, facilitating most ready reference.

It has been a long time since we have seen a work of this size that contains so much valuable information and imparts such practical details. It is a volume filled with intellectual meat that will serve the possessor well in his practice. We commend it unhesitatingly.

THE PRACTICE OF SURGERY. By James G. Mumford, M.D., Lecturer on Surgery in Harvard University. Second Edition, thoroughly revised. Octavo volume of 1,032 pages with 683 illustrations. Philadelphia and London. W. B. Saunders Company. 1914. Cloth, \$7.00. Half Morocco, \$8.50.

This second edition of this volume, revised to date is presented to the profession. It is a work that takes up the practice of surgery in the order of the frequency, importance and interest of the various diseases and presents them in their true perspective. It is not an encyclopedia of surgery—it is an excellent reference and text book for the general practitioner for it presents him with reliable information and aid in treating the surgical conditions that he meets in his daily practice. The rare, the infrequent subjects are but mentioned; the greater portion of the work is devoted to the surgical conditions most frequently met and their every phase is carefully, intelligently and clearly discussed.

Appendicitis, surgical conditions of the small intestine, colon, rectum and anus, stomach and duodenum, liver and bile passages, pancreas and spleen, hernia, gynecology, genito-urinary, chest, face and neck, head and spine, fractures and minor surgery are the head-liners of the work.

As a whole there is everything to commend and

recommend. If we might suggest, we would like to see the chapter on fractures give away to some other topic because it appears to be but a repetition of Scudder's writings and illustrations.

The general practitioner will not go astray and will be more than pleased with this work.

THE CLINICS OF JOHN B. MURPHY, M.D., at Mercy Hospital, Chicago. Volume III. Number III. Octavo of 215 pages, 54 illustrations. Philadelphia and London. W. B. Saunders Company, 1914. Published Bi-Monthly. Price per year, paper, \$8.00. Cloth, \$12.00.

Vastly enriched and increased in value by reason of the author's talks on Surgical and General Diagnosis, this number is presented to the profession, The reviewer cannot conceive how any physician desirous of remaining abreast with the times can permit himself to forego possessing these clinics. Filled from cover to cover with practical everyday helpful hints and suggestions it is a work of excellence the like of which there is no other.

This number is filled with an excellent variety of cases and leaves nothing to be desired. It belongs on every physician's desk to be read, studied and preserved as a reference work.

Miscellany

PROPAGANDA FOR REFORM

The Absorption of Iron.—The belief that organic compounds of iron were superior to inorganic iron salts arose before it was known that the bowel forms the most important channel for the excretion of this element, whence the failure to find an increase in the amount of iron eliminated with the urine by means of the kidneys after ingestion of the element in some form or other was taken as an indication that it had not been absorbed. Today it is known that iron can be absorbed and excreted by the intestinal wall. Experiments have demonstrated that both inorganic and organic iron can be absorbed and satisfactorily carry out the purposes for which iron is administered (*Jour. A.M.A.*, June 13, 1914, p. 1913).

Sodium Fluoride.—While the poisonous character of fluorides is recognized, the use of sodium fluoride as a food preservative is still considered. As a result of experiments, F. Schwyzer concludes that flourine preparations are poisonous even when administered in very small doses (*Jour. A.M.A.*, July 25, 1914, p. 323.)

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Original Articles

THE MODERN PRACTICE OF MEDICINE.*

PRESIDENTIAL ADDRESS.

GUY L. KIEFER, M.D., D.P.H.

DETROIT, MICH.

Fellow Members of the Michigan State Medical Society:

I desire to thank you for the honor you have conferred on me in asking me to act as your President during the past year. I have done what was possible for me to do in the interest of the Society and assure you now that I will continue to work for its advancement.

In his recent presidential address before the American Medical Association, Dr. V. C. Vaughan said: "Medicine consists of the application of scientific discovery to the prevention and cure of disease." Accepting this definition, it is my purpose to see how well it is adhered to in the Modern Practice of Medicine. Much is being done to-day in the field of preventive medicine, and everywhere, in medical meetings, in church societies, in sociological clubs and in private parties it is the main topic of conversation and discussion. This state of affairs is a fortunate one because the success of preventive medicine, the correct application of its principles, depends almost directly upon the knowledge of these principles possessed by the public. The more the people know about public hygiene and state medicine, the better and quicker will be the advance and progress of the modern practice of medicine. It is for this reason that the education of the people in this subject has been undertaken by organized medical societies. The American Medical Association has its corps of public health lecturers and its plan is followed by many local societies and by organizations of scientific men, allied to medicine. This education of the people has made such rapid progress that the lack of

knowledge of the general field of preventive medicine on the part of many members of the medical profession has become apparent. College regents and trustees as well as educators have awakened to this fact and accordingly courses of study have been and are being arranged to prepare doctors for the modern practice of medicine. These courses, in some instances, are of one year duration and in others of two—but in all cases they are graduate courses for doctors of medicine and lead to the degree, either of master or doctor of public health.

Remembering that "Medicine consists of the application of scientific discovery to the prevention and cure of disease," it is evident that the practice of medicine may be conveniently divided as follows:

1. Public practice.
2. Semi-public practice.
3. Private practice.

PUBLIC PRACTICE OF MEDICINE.

The public practice of medicine will be in the hands of publicly employed physicians—known in the future as they have been in the past as health officers or commissioners, but these executive officers will necessarily be trained men. The time is at hand when the executive officer in charge of the health of a community must be a trained sanitarian and his appointment must be made entirely independent of his political affiliations. Looking in this direction there was introduced in the last legislature a bit of public health legislation known as the Amberson Bill and for the formulation of which Dr. V. C. Vaughan of Ann Arbor was largely responsible. It appears to me to be particularly fitting that I should at this time and place call attention to this proposed law and mention some of its provisions.

The Amberson Bill provides, among other things, that the state shall be divided into health districts. Each such district shall be in charge of a health commissioner who shall be appointed for a term of four years. The fitness of the commissioner shall be determined by the State Board of Health after examination. The salary

*Delivered at the General Session of the 49th Annual Meeting of the Mich. State Med. Soc., Lansing, Sept. 9-10, 1914.

of the commissioner shall vary from \$3,000 to \$6,000 per year according to the population of his district and he shall devote all of his time to his public position. There shall be an additional appropriation for laboratory expenses and for carrying out the purposes of the act:

"It shall be the duty of the health commissioners to be vigilant in the work of disease prevention and the conservation of the public health, and to enforce all health laws of the state and health ordinances of their respective localities together with all rules and orders of the state board of health; to collect and report to the state board of health morbidity statistics and to make a monthly report of the work done by them in narrative form to the state board of health and in such tabular form as may be prescribed by the state board of health. Copies of such reports shall be retained by each commissioner in permanent record books. They shall make such sanitary inspections and surveys of the district as may be required from time to time by the state board of health or by the city for which appointed, or by resolution of the board of supervisors of each county. They are hereby authorized and invested with the power to enter on and inspect private property at proper times in regard to the possible presence, sources or cause of disease, to establish quarantine and in connection therewith to order whatever is reasonable and necessary for the prevention and suppression of diseases; to close schools, churches, theatres or any place of public assemblage, to forbid public gatherings in order to prevent or stay epidemics; to collect statistics concerning insanity, feeble-mindedness, tuberculosis and other infectious diseases; to inspect slaughter houses and markets of all kinds where food is sold. They shall inspect at least once each six months and make a sanitary survey of the publicly owned buildings and institutions within their respective jurisdiction and shall keep a report thereon as part of the records of their office. They may inspect any school buildings or grounds within their jurisdiction as to sanitary conditions and shall have power to close any school when the sanitary conditions are such as to endanger or imperil the health or life of the pupils attending the same. They shall include all such sanitary inspections in their monthly reports to the state board of health. They shall at all times be subject to the orders of the state board of health in the execution of the health laws of this state and may perform any duty where required by the state board of health, or any member of said board acting for the entire board, which might be performed by said board of health or an officer thereof."

It is easily apparent that the enforcement of a law with such and other similar provisions will mean the practice of medicine in the modern sense, namely the application of scientific discovery to the prevention and cure of disease. One of the requirements of the law is the keeping of proper morbidity and mortality as well as birth statistics. Reliable vital statistics make possible satisfactory public health work and without this foundation the superstructure of the work constituting a public health department is bound to be more or less unstable. Again, in making it the commissioner's duty to be vigilant in the work of disease prevention and the conservation of the public health, the law implies that the executive shall have knowl-

edge of preventive medicine sufficient to stay epidemics and restrict disease.

The County Health Commissioner must be a trained sanitarian and one that has an intimate acquaintance with the cause and effect of contagious diseases. The best preparation for such official duties is a regular course of medicine in a first class medical college, followed by a special practical course in public health. This latter should give experience to its students in the diagnosis of communicable diseases, laboratory work such as is required in up-to-date public health laboratories, some knowledge of sanitary engineering and practical work in the activities that are part of modern state medicine, such as child welfare, medical school inspection and milk inspection. The prospective health commissioner should also receive instruction in public speaking and writing, as publicity of his work is to be one of his chief duties.

At the last meeting of the state legislature of Michigan the Amberson bill was presented; at the impending meeting of that same legislature either the same bill or one closely resembling it should be passed. We boast of the membership of our State Medical Society but we boast in vain if in such organization there is not sufficient strength to bring about the passage of a law which each of its members know is absolutely necessary for the modern practice of medicine. I have talked with many of the members of this society in various parts of the state during the past year and am satisfied that we are agreed as to the necessity of whole-time, properly paid health officials—the way to get them is pointed out in the Amberson bill.

SEMI-PUBLIC PRACTICE OF MEDICINE.

The semi-public modern practice of medicine consists of the supervision of the health of large numbers of employees in factories, work-shops and public service corporations and the regulation of the sanitation of their institutions by salaried medical men. Consider for a moment the advance that has been made in this respect. For a long time there have been physicians and surgeons to look after the illness and accidents among the employes in large factories and especially in mining districts, but little or no attention was at first paid to prevention. In cities, men, women and children worked in sweat-shops, properly so named, and little or no heed was taken of their health or comfort. Through the teachings and efforts of public health departments, employers of labor have learned that it is in their own interest to correct the conditions that existed. Visit today in any city the modern factory and you will find an exponent of the modern practice of medicine; there you have light, sanitary heating and ventilation, modern toilet, and in some instances,

bathing facilities, clean lunch rooms and comfortable rest rooms. All of this makes for efficiency of the employee, but whatever may have been the motive, the result has been accomplished. Look at the public carriers, for example our railroad trains. Much has been said and written about the insanitary condition of these institutions and yet it is a fact that the sanitation of the average American railroad train is in advance of its occupant. The traveling public need to learn how to use some of the modern improvements. The abolition of the common drinking cup, the use of individual towels, the use of vacuum cleaners in place of the old dust-raising whist broom, the nine-foot sheets and thorough cleaning of the cars at all terminals may be mentioned as examples of modern railway sanitation. Railroad corporations are making such steady headway because they have in charge of this work competent sanitarians. The Pullman Company was the first to see the advantage of such service and has long since employed it, but various railroad companies all over the country are today employing sanitarians to look after the health of the traveling public along their lines and to conserve the health of their own employees as well as surgeons to take care of accidents. Many private firms and individuals who employ numbers of men and women are making such improvements as I have mentioned above and in not a few instances the work is in charge of a physician with a proper knowledge and understanding of preventive medicine.

Insurance companies have not been slow to recognize the value to themselves of prevention and with the prolongation of the lives of their policy-holders in mind, they are offering complete medical examinations twice a year, the company to pay the examiner's fee. In this way, more diseases may be recognized in their early stages when they are amenable to treatment and much can be done to prolong the lives of the individuals affected. This is a shrewd business move on the part of the insurance company, but is a move in the right direction and one which is bound to be considered as proper in the light of the modern practice of medicine and to be highly commended.

PRIVATE PRACTICE OF MEDICINE.

In the face of the facts as recorded above, what is to become of the "private practitioner?" Is he to pass out of existence and is all medicine of the immediate future to be in the hands of salaried men; or, is the future of the doctor in private practice assured? It has seemed to me for several years past that there is a greater need for well trained physicians in private work today and in the immediate future than there ever has been. During my incumbency of

the office of health officer in Detroit I often heard it said that the work of that and of similar departments was putting the doctor "out of business." While I realize that it is the ultimate aim of public hygiene to make the physician in the sense of a pill peddler superfluous, I appreciate equally well that he will be all the more needed to practice medicine in the modern sense of the word. The education of the public in preventive medicine has even now had the effect of sending intelligent individuals to their physicians periodically for a complete medical examination. In cities and even in rural districts men and women are submitting to such examinations more and more. It is not surprising that this is done. For years we have been having our dentist make examinations of our teeth at regular intervals—more or less prolonged, the time depending entirely on the individual. In fact, the dental profession has been in advance in the practice of prevention as far as that specialty is concerned. But how about the practice of medicine? Is there less work for the physician who looks after babies of individuals who are willing to employ him privately? The answer is apparent. The day of attendance on a baby ill of cholera-infantum may be to a great extent gone, the disease has been prevented in many instances by the vigilance and public advice of the health officer, but not so in all cases. Many babies are put in the hands of the family doctor in the modern sense, the day they are born and it becomes his duty to keep them well. "Baby feeders" they are called facetiously by some of their colleagues, scientific physicians they really are, engaged in the practice of modern medicine. Again look at our friend who calls himself a specialist in dermatology and syphilology. Is he without occupation because of the progress of modern preventive medicine? How about the men who come to him without symptoms of disease to find out whether they are really in good health. Is the application of the Wassermann test in keeping with the modern practice of medicine? What is the operation so often performed for the removal of tonsils and adenoids, if not the practice of modern medicine for the conservation of health and the prevention of disease. The relief of headache due to eye strain, the correction of errors of refraction to increase efficiency, the corroboration of the diagnosis of diseases of the kidneys by an examination of the fundus of the eyes, all of these things are examples of the practice of modern medicine. The practice of medicine as applied to diseases of the stomach and intestines, when not surgical, must necessarily be largely confined to proper dietetics and what is such practice if it is not in accordance with our definition? But where is the field of the general practi-

tioner, I hear some one ask. He is the family adviser as he has been in the past but on a more scientific basis—he is the family health adviser if not the family physician and his relation to each of “his families” is even more sacred than in the days of old. He is expected to keep the baby well, not merely to give it medicine when ill, he is called in to examine the children of school age from time to time and to give advice as to their work and play; he is asked to pass on the health of the youthful son and daughter and find out why this loss of weight or want of appetite, and he must keep track of father and mother to see that they do not work and worry so much that their health may be impaired or their lives shortened. In case of a possible exposure to some contagious disease he is called upon to give advice as to the protection of all members of the family and to administer vaccines or bacterins if necessary. To achieve the greatest success in his practice, the modern doctor must be a man possessed of logical mind, medical skill and moral courage. He must not only be able to recognize the early signs and symptoms of diseased conditions, and to draw correct conclusions therefrom, but must also have the courage to tell his patients of his findings truthfully and fearlessly. In this way he will be able to do the most good by advising what can be done to arrest a disease or to restore an individual to health. On the other hand the doctor of today owes a duty to the state. The relation between the public and private practice of modern medicine is a close one and they are dependent one upon the other. Organized public health departments do much to aid the practitioner in his work, and he should do his full duty in return. By reporting promptly all cases of communicable disease that comes under his notice, the doctor lends a valuable service not only to the community but also to his individual family. A man who allows cases of diphtheria to go without treatment until they are moribund, who refuses or fails to recognize tuberculosis until the lungs are filled with rales and the sputum with tubercle bacilli, or who neglects cases of cancer until they are inoperable, or at least beyond recovery from operation, has no place in the modern practice of medicine. The people are demanding better things and they are entitled to more consideration; on the other hand men who are prepared to practice modern medicine need have no fear that there is no demand for such service.

My views on this subject are well expressed in an editorial of the *British Medical Journal*,¹ from which I quote:

“General practice has, in a certain sense, become a specialty. It is true that its ranks contain a larger number than any other branch

of the profession, but the large increase of the number of whole-time appointments and of specialists of every conceivable variety in the last few years and months raises a doubt as to how long this numerical preponderance will obtain. But we are at least assured that there is no danger of the extinction of the general practitioner. The intimate personal relation between the individual patient and his doctor is an essential factor which no changed conditions can completely eliminate. It is on the general practitioner that the eyes of the public and the profession are now turned, and we are confident that the trust will be completely justified.”

VITAL STATISTICS—THE WHITE SLAVE OF SANITATION.*

GRESSY L. WILBUR, M.D.
ALBANY, N. Y.

Director of Vital Statistics, New York State Department of Health.

Vital statistics are almost universally recognized by practical sanitarians to be the absolutely necessary bases of all progressive, modern public health work. What we call State Medicine undoubtedly owes its origin to the systematic collection and study of the vital facts of human life first carried out in the splendid series of English reports of the Registrar-General begun by Dr. William Farr nearly eighty years ago (1837). Today it should scarcely require explanation or argument, especially before an audience of medical men—and women—to show that the city, state, or county that continues to dwell in ignorance of its exact sanitary condition, as shown by absolutely reliable vital statistics, is an anachronism, a relic of the dark ages, fitter for association with those who still believe in witchcraft and amulets than with the scientific sanitarians of the present day.

It is unnecessary but I love to quote the emphatic declaration of Doctor Fulton, Secretary-General of the International Congress on Tuberculosis and of the International Congress of Hygiene and Demography, the accomplished and experienced executive officer of the Maryland State Board of Health—a state, by the way, which in common with New York is now putting into effect a system of district sanitary supervisors or health officers, the results of which will undoubtedly be of much interest in connection with a similar plan of sanitary organization proposed for Michigan. Doctor Fulton said:

“Public hygiene is built upon, is controlled and directed by, and is everlastingly in debt to vital

*Chief Statistician for Vital Statistics, 1906-14, U. S. Bureau of the Census, Department of Commerce. Paper read before the Michigan State Medical Society, Lansing, Sept. 10, 1914.

statistics. The might and the right to direct the future of preventive medicine, to make and to terminate contracts, to approve and reject risks, to test materials and methods, to invest means and distribute profits, these things belong indalienably to vital statistics. Every wheel that turns in the service of public health must be belted to this shaft, otherwise preventive medicine must remain invertebrate and unable to realize the profits available from the magnificent offerings of collateral sciences. If the unborn historian of hygiene in the twentieth century shall find one anomaly more curious than any other, it will be that the twentieth century, opening with prodigious resources, immediately available, ran a third or half its course before these resources became so standardized that each unit of power might be accounted for in a definite scheme of vital statistics."

Today every public health official, every enlightened physician, every earnest social worker, demands the aid of accurate vital statistics. The great life insurance companies are in the field for longer and better human life—not from selfish motives of saving dollars and cents through the prolongation of the lives and usefulness of their policyholders, but, as I believe, through the purest altruistic motives. As a sample of the splendid work performed by the statisticians and medical officers of prominent life insurance companies, Hoffman, Rittenhouse, Marsh, and many others, I may quote from a leaflet recently gotten out by Dr. Louis I. Dublin, Statistician of the Metropolitan, under the title "Why States Should Support Vital Statistics." Doctor Dublin says:

"Vital statistics is a system of accounting for human life. Just as the business man gets accurate information for the proper management of his affairs, so the state should secure knowledge of the nature and extent of its vital resources. *Without vital statistics, the state cannot know how best to safeguard the health and prosperity of its citizenship.* Birth, marriages and divorces, and cases of sickness and death are facts with which the modern state is most concerned. They correspond to the income and disbursements of the business man. A balance sheet properly kept [note the words *properly kept*] by the state shows whether or not progress is being made. Statistics of sickness and death are among the community's chief means of preventing suffering and saving life. The health officer must know where cases of contagious diseases are found; for only in this way can he check epidemics and protect the people. *Death certificates tell the modern health officer just what are the chief weaknesses in his sanitary arrangements.* Too many cases of typhoid fever point to bad water supply, to an inadequate sewerage system or to polluted milk. A large number of deaths from tuberculosis points out a distinct health policy to the community and tells definitely whether the facilities at hand are sufficient to cope with the situation. *Today, no community can properly safeguard the health of its people if it has not at hand accurate and complete statistics of sickness and death.*"

"ACCURATE AND COMPLETE STATISTICS OF
SICKNESS AND DEATH."

Have you accurate and complete statistics of sickness in Michigan? Are even your statistics of deaths—and of births also, because the

exceeding important ratio of infantile mortality depends upon complete registration of all births that occur—accurate and complete as they should be for the protection of the interests of all citizens of the state, and especially of the children born therein? Your answer must be *no*: and yet Michigan is far in advance of many states of the Union with respect to the registration of vital statistics, and was, at one time, thanks to that grand pioneer sanitarian whom, it is and will be to the eternal disgrace of the state, Michigan has neglected to honor as he has well deserved, a leader not only in the United States but in the world in this most fundamental matter of statistics of sickness. I refer to Dr. Henry B. Baker, for many years Secretary of the Michigan State Board of Health. He put Michigan on the map in a sanitary sense, when doctors were quarreling as to whether scarlet fever and diphtheria were infectious, and later arguing in a similar way about tuberculosis. "A prophet is not without honor save in his own country." Here is what Assistant Surgeon-General John W. Trask, U. S. Public Health Service, in his recently published monograph "Vital Statistics—A Discussion of What They Are and Their Use in Public Health Administration" says of Doctor Baker's epoch-making work:

"Massachusetts and Michigan were pioneers in the collection of information regarding the prevalence of disease.

"Early Development in Michigan.—The plan which the Massachusetts State Board of Health adopted in 1874 of furnishing postal-card blanks to voluntary correspondents for the purpose of collecting weekly information of the prevalence of disease was adopted by the Michigan State Board of Health in 1876. In its annual report for the year the State Board of Health in referring to the matter states 'A knowledge of the nature and extent of prevalence of at least the several prominent diseases throughout the state has from the first organization of the board been considered desirable.'"

* * * * *

"The Michigan law seems to be the *first one looking to the comprehensive collection of information in regard to the prevalence of disease, and for a number of years the work was carried on with intelligence and perseverance under the able supervision of Dr. Henry B. Baker, Secretary of the State Board of Health. Doctor Baker was truly a pioneer in this work and MANY YEARS AHEAD OF HIS TIME in his appreciation of its importance.*"

The last italics and emphasis are mine; but I believe that you will all concur with me in this magnificent tribute, from the head of the Government work in morbidity statistics, to Dr.

Henry B. Baker, a citizen of Michigan. Ousted from the important office of executive health officer of Michigan by the agency of cheap and nasty political "workers"—I will not disgrace the name of "politician," which may be used in an honorable sense, by applying it to such Grylles, to whom the valuable reports and collections of sanitary and statistical documents made through many years by Doctor Baker were indeed "pearls"—they went to the junk-dealer or the bonfire—the record of Michigan, my native state, and whose honor is indeed dear to me, in the treatment of its pioneer sanitarian, is, and will be forever, a disgrace to the people of the state of Michigan, and to its medical profession—if they only realized, and thoroughly comprehended, what a grievous thing they have permitted to be done.

I have spoken with some feeling in this matter for I owe personally a very large debt to Doctor Baker. When I assumed the direction of the Michigan vital statistics back in '93, at a time when they were merely a laughing-stock for incompleteness and general worthlessness, it was Doctor Baker to whom I turned for advice and helpful counsel in every emergency. You may recall, perhaps, at least some of the older members of this Society may recall, the first paper that I ever prepared for an audience on vital statistics, which was presented at the annual meeting of the Michigan State Medical Society at Grand Rapids in 1894, and discussed by Doctor Baker. From that date, with the help of Doctor Baker, Doctor George E. Ranney of Lansing, Dr. Learus Connor of Detroit, Dr. Eugene Boise of Grand Rapids, and other members of this Society, began the movement which resulted in the passage of a modern vital statistics law for Michigan, a law which, in all essential details, was identical with what is now known as the "Model Law," recommended by the American Public Health Association, the American Medical Association, the Bureau of the Census, and now in practical and successful operation in a score of states—among which, I am glad to say, since January 1, 1914, may be numbered New York. And the Michigan law, in turn, was based largely upon the work of Dr. Elisha Harris of New York; so the circle returns.

I said that all modern public-health workers were convinced of the importance of accurate vital statistics as a basis for their efforts. Unfortunately, this statement is not quite true, at least for the United States. This country is far in the rear of other civilized nations with respect to vital statistics, due to the fact that each of the forty-eight sovereign states must legislate for itself. In going about the country during the past dozen years for the purpose of promoting the passage and enforcement of good registration laws, I have come upon some

curious experiences. I am glad to say that the value of vital statistics is almost everywhere recognized; the growth of the registration area from about two-fifths of the total population in 1900 to nearly two-thirds in 1913 is evidence of this fact. Most of all, during very recent years, is the enthusiastic growth of registration territory in the South, an important portion of the country which, prior to 1911 when Kentucky was admitted, had no registration state. Now good laws are in effect in Virginia, North Carolina, Tennessee, Arkansas, Mississippi, Louisiana, besides a bill passed by both branches of the South Carolina Legislature and *still awaiting approval*¹—or rejection—by Governor Blease. Every state in the Union at the present time has some form of state law for this purpose, not always a good law but at least some legal recognition of the importance of vital statistics to the community, with one exception. That is the state of Georgia, and I hope that before this paper is presented, the earnest efforts of many citizens of that state and the able editorials and articles on the subject in a large proportion of the state press will be rewarded by the passage of a good law.

Curiously enough, Georgia, the most backward of all American states up to the present time with respect to the keeping of records of the births and deaths of its people, presents the only state sanitary organization that I have ever heard of to go on record as disparaging the practical value of vital statistics for sanitary work. The condition is so unique, and so amusing in these days of sanitary progress, that I may quote briefly from a long letter officially signed by Emory H. Park, M.D., Director Publicity Department of the Georgia State Board of Health, as printed in the *Atlanta Journal*, June 10, 1914, and also from a scathing editorial in the same issue by Mr. James R. Gray, under the caption "Remarkable?" from which it appears how far public sentiment may be in advance of benighted and fossilized so-called "professional" opinion.

Here are some gems from Doctor Park's contribution to sanitary and statistical science:

"We beg to state that in our opinion there is no more striking example of the fallacy of figures than in the collection of vital statistics. We think it is of a great deal more importance to the health and treasury of Georgia for the commonwealth to provide county boards of health, county health officers, and money sufficient to enforce our health laws, than it would be for the state to spend several thousands of dollars annually in collecting mere figures which tend to show how many died of this and how many of that disease."

"While we do believe that vital statistics are of some value to public health officials in fighting disease, we most positively do not think that vital statistics are essential. While it would be convenient in some respects to be able to know that

1. Approved September 1, 1914.

here so many died of this and there so many of that disease during such and such a period, still this *luxury* can be, at least for the present, dispensed with. We all know that preventable disease stalks in our midst constantly [possibly it would not "stalk" so constantly "in your midst" if you had a little precise information about its occurrence], and it is no more essential for the medical profession to know just how many died of such and such a cause in order to give the profession a correct point to work from in a campaign against disease than it is essential for lawyers and sheriffs to know just how many people were murdered last year to enable them to start or continue a campaign this year against crime."

Referring to Cabot's and Oertel's misunderstood criticisms of diagnosis of causes of death, which, so far as they are well-founded, apply with even greater force to those daily diagnoses employed by the physician for the *treatment* of disease, he says:

"Taking our population as a basis, one could easily [Note the foolish word], *from statistics gathered in other parts of the country* [Georgia a mere parasitic state, sucking nutriment from more progressive communities; the whole is a sad advertisement of health conditions in Georgia and a terrible arraignment of ignorant and incapable health direction] since the proportion of error is quite as great as it would be here, and probably following the same general lines, *in a few hours give to Georgia statistics that would be in every way as reliable as those that could be collected under present conditions.*"

In which last remark I most cordially agree with Doctor Park, it being understood that the "present conditions" refers to collection by the state health authorities, concerning whom Dr. Park explicitly stated that the letter was prepared by "our desire to give to the people of Georgia the benefit of their Board of Health's opinion on this subject, the importance of which is often inadvertently overrated." Says Mr. Grav, in editorial comment:

"Angels and ministers of grace defend us! Do business corporations regard book-keeping as a luxury? Shall the state regard *life-and-death book-keeping* as a luxury? Is it merely a 'convenience' to know the extent and the area of particular diseases, to know whether they are diminishing or increasing, to know just where and how to direct health campaigns for the accomplishment of definite and enduring results?"

* * * * *

"It is due to our State Board of Health, as well as the rank and file of our people, that the Legislature establish a vital statistics bureau for Georgia. If it be audacious to insist upon this point, in the teeth of the highly original communication we publish elsewhere, we can only fall back upon the opinion of the State Medical Association, of national health authorities, of the national census bureau, and upon the example of forty-seven states who, in this respect, have left Georgia 'in the dark backward and abysm of time.'"²

2. A vital statistics bill was passed by the Georgia Legislature, August, 1914.

So much for Georgia! But before you laugh, or at least before you laugh too consumedly, do you remember when physicians in Michigan were protesting against reporting scarlet fever and diphtheria? And bullying Dr. Baker and the State Board of Health because "consumption" had been made a reportable disease? Considerable water has gone under the mill since that time, but are you, as physicians, promptly reporting your cases of communicable diseases today, as required by law? Do you report all births within the limit set by law? And do you, as members of county societies and of the great state organization, uphold the hands of the administrative officers of public health and vital statistics and demand that these laws be enforced, to the letter, with punishment of the negligent and lazy, even though they be your professional brethren in high standing, for the benefit of the people of the state?

It is not yet time to smile at other states.

While I think he is exceedingly misguided and uninformed, I admire Doctor Park's outspoken statement of his position and that of the Georgia State Board of Health, and greatly prefer it to the hypocrisy that talks long and, apparently, with earnestness of the "value of vital statistics," then nullifies or prevents all successful work in that direction for the sake of personal or professional "graft." Or that, recognizing the need of accurate vital statistics in the state, permits political grafters to make patronage out of registration laws and to barter their enforcement for party or personal help.

Vital statistics has been more prostituted to base political ends than any other branch of public health work. This is why I chose the title for this paper, "Vital Statistics, the White Slave of Sanitation," because the "rotten vital statistics" with which this country is afflicted are largely due to the lack of protection and encouragement for trained statistical workers, and security of tenure against the personal and political attacks often made as a result of conscientious enforcement of law. The medical profession is too often careless, perhaps deceived by some influential physician who assumes the right to violate the law at his will, and health officers and registrars are *afraid*, with reason, to do their manifest duty.

Whoever tampers with public health—and vital statistics, except perhaps in Georgia, is the absolutely necessary basis of public health—is a criminal. Doctor Vaughan has said: "I believe that when a death from typhoid fever occurs somebody ought to be considered a murderer and punished accordingly." Certainly, in my judgment, the members of a city council who, knowingly and for their personal profit, delay the installation of a proper system of water supply, *thereby causing needless deaths*, are

guilty of murder and should be treated with far greater severity than the criminal who slays in a moment of passion. And a great state medical organization, prating for years of the importance of vital statistics and *knowing absolutely*, as no competent sanitarian doubts for a moment, that reliable vital statistics means the saving of lives—what shall we think of medical men who defer, even for a month or a year, the effective registration of vital statistics in order to protect their semi-political organization and escape the mortification of renouncing the ineffective agencies with which they have gold-bricked their own state? Is true state love and patriotism dead that men care more for power and self-aggrandizing machinery than for human lives—at least their neighbors' children—that might be *saved* by using the results of effective registration of vital statistics? Give me Doctor Park, in preference to such traitors to their state and to their profession, every time!

We are cultivating a keener sense for, and a sharper distaste of, graft with the passing of every year. Conditions that existed even a decade ago are unthinkable now. The public conscience is awakening, if not yet fully awake. Why here in this Capitol building, ten years ago, I well recall the scorn with which a member of the Legislature resented the imputation that the possession of railway passes might influence his vote, or at least his attitude, toward railway measures. And this year in Congress the 20 cent mileage (feature of the appropriation bill) was *almost* done away with. Graft may be defined as the obtaining of money, or other reward, for services not performed. It includes the farming-out of state employment, which should be strictly under a thoroughly enforced and protected civil service, to further the political or personal ends of individuals. It creeps in in unexpected places, in city, state, even in Federal government affairs. Why, do you know that this year, Anno Domini 1914, on the twentieth of July, the registration area of the United States, an area which it has taken many years of devoted work and hearty co-operation on the part of the Federal and State authorities to build up, was practically *absolutely destroyed*? I do not suppose that a single member of Congress knew of the gravity of the situation. Indeed, I do not know that since the foundation of the Government even one member of Congress has given a single moment of his time to the constructive consideration of the great problem, underlying all our efforts for efficient public-health work on a national scale in this country, of how shall the United States obtain effective registration of vital statistics for the country as a whole. Few indeed have given even the most casual consideration, and even the measures recom-

mended by the American Medical Association were most defective in this important respect. Though I believe that the problem will be solved, and that—as most particularly, in some very important respects, a problem of State Medicine—it will be solved by the National Department of Public Health which is sure, some day, to be established, while the present ignorance and indifference of the medical profession continues to this fundamental matter of thorough enforcement of registration laws, the experiment would be very dangerous. Vital statistics must be protected from graft, and the meanest kind of graft is the peddling of cheap appointments and the displacement of trained and conscientious workers in this field.

Graft is the payment for services not rendered. When the Michigan Society went before the Legislature in 1895 and 1897, through its committees, they took pains to declare that the proposed law was not for the special benefit of the doctors of the state; nay more, that it imposed certain duties upon physicians without giving them special compensation therefor. Experience has demonstrated that such compensation does not procure complete registration. But after the law was passed, committees of certain county societies procured an amendment giving physicians and midwives 50 cents for each birth returned. It did not improve the completeness of the returns to any extent if at all. While the individual physician may with propriety receive any fee granted him by state law, how does the organized profession stand with respect to the compensation paid for complete returns and the value therefor not delivered? Does it come under the definition of graft, and would it be well to appoint a committee to consider the propriety of using the whole force of this Society, state and county organizations alike, to "deliver the goods," or else cut out the belittling fee and support the authorities in the thorough enforcement of law, by means of the penalties thereof when found necessary?

AFTERWORD.

Just as I left Albany I had the pleasure of receiving a copy of the splendid address of your President, Doctor Kiefer, and as I write I have just enjoyed the privilege of reading the remarks of Doctor Sawyer. The earnestness of these addresses, which I may take as representative of the active spirit of sanitary advancement now animating the Michigan State Medical Society, demands that I should render to you, as a loyal member of this Society and a citizen of Michigan—until the establishment of my residence in New York—the best information and judgment of which I am capable relative to the condition and conduct of the work in vital statistics in Michigan, my native state, and

whose registration service I had the honor to establish and conduct for thirteen years prior to my service as Chief Statistician of the U. S. Census Bureau, which terminated on July 31, 1914.

Vital statistics in Michigan, as elsewhere, is an essential part of the public health administration. It cannot be satisfactorily and successfully conducted except under medical direction as a part of the public health department of the state. All states in which this work has been separated from the public health service have seen their vital statistics undergo a species of dry-rot, in which the important duties of registration and use of vital statistics have degenerated into a mere perfunctory clerical or political administration. Michigan has taken no part in recent years in the national advancement of vital statistics, and has failed to realize the results that would have been readily available as a result of the excellent Michigan law. The service has been prostituted to the dirty expedients of political requirements, and the wages of faithful workers have been diverted to the support of political parasites.

The remedy for this condition is re-organization, on a civil service basis if possible but most emphatically with the absolute elimination of political favoritism and of those who have prostituted the public service for private ends; the establishment of the vital statistics work as an essential, fundamental, honored, and adequately equipped branch of the State Health Department; and I believe also most earnestly, from my experience in the administration of the New York law, with the organic co-operation of the district supervisors to be provided under a general public health law of the type of the Amberson bill. Under such conditions the sanitary and registration work of the state would again come rapidly to the front, and the rich dividends of human lives saved from disease and death would make us wonder why this step had been so long delayed.

DISCUSSION OF PRESIDENT'S ADDRESS.

DR. VICTOR C. VAUGHAN, SR., Ann Arbor:

Mr. President and Members of the Society: While Europe is today retrograding, falling back in carrying on a universal war with all the atrocities committed by the Goths two thousand years ago, the medical profession of the United States is called upon, I believe, to render this country and the community a patriotic service, which has never yet devolved upon any people at any time. In the midst of peace and prosperity the canker of degeneracy is eating away our vitals. The number of feeble-minded in this country today, so far as can be ascertained, is at least one out of every 500, and at the rate the feeble-minded are increasing not fifty years will elapse before the number will be one in every 250. In our glorious country with its boasted civilization, according to Weir of New York, there are

ten thousand murders a year, more than one for every hour of the day and night. Can we claim rightly a civilization with such a blot as this? In the state of Michigan alone there are, so far as we can learn, not less than ten thousand criminals abroad among us. In our cities our police courts are busy night and day with the criminal. Our jails and our penitentiaries are not big enough to accommodate them, our cities are infested with them, and no rural community is long free from them. This is the condition which confronts us.

I tried to show, in my address at Atlantic City, that disease is the most fertile cause of crime. Both religious and profane writers tell us that chronic disease breeds chronic crime and the slow evolution of the criminal. The medical profession in this country have done wonderful things in the last thirty years. From statistics furnished by Dr. Wilbur, it is shown that the death rate from tuberculosis in the United States in the last thirty years has been reduced 54 per cent. Mr. Hoffman, of the Prudential Life Insurance Co., made a statement showing that if the death rate from tuberculosis which prevailed in 1901 had continued during the following ten years, there would have been 200,000 more deaths from tuberculosis than did occur. In other words, preventive medicine saved an average of 20,000 lives every year from this one disease. With this record before them how can any sensible people deny any reasonable proposition put up to them?

In 1880, we began to treat scarlet fever as an infectious disease. In that year the rate was 54 for every 10,000; today it is 9 for every 10,000. Isolation came nearer stamping out scarlet fever than anything else. Isolation did nothing toward cutting down the death rate of diphtheria. Then there was the wonderful discovery of antitoxin and immediately the death rate from this disease decreased. Typhoid fever is falling rapidly as a cause of death. In 1880, the deaths in this country were nearly 20 per thousand per year. In 1912, the death rate was less than 14 per thousand per year. The average length of life in this country in 1880 was 33 years. Today it is 50 years, and a man 50 years old today is younger than a man 30 years of age a generation ago. If the principles of sanitation, as we now understand them, were put into practice, within 15 years the average life would increase to 65 years. The death rate in Michigan is 14. The death rate in the Panama Canal Zone, involving a large number of negroes, was two or three times what it was among the whites. The death rate today is the measure of intelligence, that is what it is. The death rate in London in the slums with its wreckage of all nations is 14. The death rate in Boston is 27, which is the difference in the measure of intelligence. Today whether the child lives or not is a matter of intelligence on the part of the mother, who takes care of the child, and its growth, health and maturity are a matter of intelligence on the part of the people who care for it.

Now Dr. Kiefer has referred to the Amberson bill. I hope that this body before adjourning will appoint a committee or refer to one of the committees this bill, and ask the co-operation of the State Board of Health in perfecting or changing this bill, with the object of presenting it to the next Legislature. It provides for a full time health officer in each community; whether by counties or districts is a matter to be discussed. This bill was introduced two years ago in the Legislature of Minnesota, Indiana, Ohio, Michigan and New York. It passed in New York, the only state in which it did pass. Dr. Wilbur will tell how the work is beginning to develop in that state. We need sanitary supervision in every home in this state. We

need competent health inspectors to go into every place. Now it is an unpleasant thing to say, but the truth must be told, in the beautiful little town of Ann Arbor, in the shadow of the walls of the University, there are homes where it is as impossible for children to grow into healthy normal citizenship as it is for oranges to grow at the North Pole. Within the shadows of one of the University buildings we found not long ago a mother and two daughters, neither of whom was sixteen years of age, and all three prostitutes. We found a disreputable condition in one of the public schools which was traced to a boy. That boy was followed to his home, and his mother boasted that she taught him—the dirty whelp! I don't believe Ann Arbor is any worse than any other place. There are homes scattered all over the country over which hang clouds of darkness just as dense as hovered over the world in the black ages. The only way to reach this is by medical inspection. The courts from the highest to the lowest have decided that it is wholly within the province of the state, and in strict accord with police regulations to go into any home at any time to investigate health conditions. It is the only way in which it can be done. We have heard too much about property rights and have heard too little about individual duties. When a person becomes a citizen of a community certain responsibilities rest upon that person. The only way to save the human race from the slowly eating cancer of degeneracy is preventive measures. Now, whether this is ever realized depends upon two things, the wisdom of the medical profession and the co-operation of the public. I do not know whether we can get them.

I am authorized to announce that the committee having in charge the modification of the marriage and divorce laws of this state have decided that each person, (both applicants) before applying for a marriage license, shall make affidavit that they are not suffering and have not suffered from any communicable disease. The committee has proposed that any one who has suffered from any form of venereal disease shall be prohibited from marriage. Dr. Kiefer and some others made strenuous objection to this. We know that both syphilis and gonorrhea are both curable diseases and people have been cured of them and have remained healthy thereafter. So the committee has promised to modify that part of its report, they shall not be permitted to marry until they have been cured of the disease. Now the proposition to change the marriage laws of Michigan is a milestone in the right direction. Here are a lot of lawyers, not medical men, who are recommending these changes, which shows the trend of things. The law requiring applicants to make an affidavit will be a dead law. The man who has syphilis will not hesitate to swear that he hasn't it. Even if the law of Michigan provides that a man shall make such an oath, what does it matter?

Preventive medicine in order to be of the greatest service to mankind must insist upon the medical examination of every citizen once or twice a year. It is the only thing which will reach the root of the evil. Today a man cannot be detained in custody, cannot be put under guard, cannot be restrained, unless he is declared insane or has already committed a crime. What we want is to get at them before the crime is committed. You cannot reproduce good citizens under conditions that make reproduction impossible. Ninety thousand people die in this country every year from Bright's disease or diseases of the kidneys. Seventy thousand of these people could have been saved if a diagnosis had been made early. Now this is the work that should be done. The Amberson bill is a long step toward getting it done. It is not far enough, but it is as far as we expect to get just now. Will the medical

profession of Michigan arise and show itself capable of doing this patriotic service? Will the intelligence of the people of Michigan permit us to do it? These are questions which are to be tried out. No more important matter has ever come before any body of men at any time in the history of the world.

When this terrible war in Europe is ended, regardless of what the outcome may be, America will be the only great nation on the earth to carry forward the banner of civilization, and whatever America does will depend largely upon the wisdom of the medical profession and the co-operation of the people, and there was never a time in the history of the world and there never was a nation where scientific medicine had such powerful allies as it has among us today. The newspapers all over the country, reputable newspapers are doing everything they can to further the work of sanitation. Only last spring the most shameful advertisement appeared in three Boston papers which said: "85 per cent. of deaths are preventable," says Dr. Vaughan of the University of Michigan, "So and so will prevent it." I laid the matter before the papers and they interviewed the advertiser and he said he did say that 85 per cent. of deaths were preventable, but didn't say 'So and so' will prevent it, that that part was not in quotations, but the other part was in quotations and I couldn't do a thing. I simply sat down and wrote a nice letter to the business editor of each one of these papers and received a nice letter in return and they withdrew the objectionable advertisement. Now that wouldn't have been done ten or fifteen years ago. They would have said "Go to Hades." Now I do hope that the medical profession of Michigan will take the necessary step in advance of this time. If the Amberson bill isn't what we want let us change it. Let us go to the next Legislature with a bill of this kind, something which will be of interest to the people.

STATE MEDICINE.*

W. H. SAWYER, M.D.
HILLSDALE, MICH.

When the University of Michigan conferred upon Dr. Kiefer its first degree of Doctor of Public Health, it recognized his eminent service in public health work and honored itself.

When the National Government called to head its Department of Vital Statistics Dr. C. L. Wilbur, it developed one of the most distinguished experts in this field. His call to New York to initiate and organize its Department of Vital Statistics under its new health law is evidence of the wisdom of the commission charged with this duty.

These men both sat at the feet of one of the world's most distinguished scientists and sanitarians and drew inspiration and enthusiasm from him. They should be a source of pride to him and to us.

It is interesting to note that the teacher and his disciples are in positions of such importance and able to make so prominent the achievements in this greatest of all causes and contribute so much to it.

While I am in hearty accord with our President in his argument for preventive medicine and his plan of organization to develop it in an orderly and effective way, I am compelled to differ from him as to the final relation of the

*Delivered at the General Session of the 49th Annual Meeting of the Mich. State Medical Society held in Lansing, Sept. 10, 11, 1914, in discussion of the President's Annual Address.

general practitioner to the community and his patients. If I may be indulged for a few moments I will discuss this question from my view point.

The nomad in his tent was a law unto himself. No social obligations restricted his living. He cleaned house by moving and his foes were obvious.

This day of individualism has given place to congregate existence. The increase of population, concentration at focal points, and rapid transportation have brought about a condition of interdependence increasing the responsibility of civic units of organization and administration. The race harks back to primitive customs and primitive ideals and but slowly opens its eyes to modern needs and modern methods. This halting, doubting characteristic is not all an evil but contributes to conservative, safe advancement. Faults must be first made plain and the remedy convincingly effective. Scientific demonstration is removing the veil of mystery and its achievements are accepted as a basis of action. A life is no longer a discreet molecule but an indivisible atom in the mass related and inter-related and dependent upon the vitality of the aggregate.

The most important duty of the state is to protect and nurture the health of its inhabitants, for upon their physical well being depends its perpetuity and greatness. It is the measure and means of progress. Science and observation have demonstrated a want, and a conceded want forces an effort to satisfy it. The people have a growing understanding of health conservation and are following the leaders in their righteous demands. Out of the circumstances is being evolved a new era of salutary paternalism. Restraints and changes once offensive are tolerated, then accepted. Not so long ago there was little if any state control of medical practice or medical standards. It was resisted as an encroachment upon personal rights and liberty. Today most of the nations of the world and the states of the Union have well framed and well administered laws. Every step forward has been a recognition of the paramount importance of the welfare of the whole and that the greatest good to the greatest number must be the dominating purpose. We cannot be free while our neighbor is a slave—we cannot be well while he is ill. We are reliant upon him and he upon us. In order to protect him we must have general laws which we must obey and we must obey. He must not jeopardize us or we him. The success of preventive medicine is based upon this axiom. The practice of medicine is a social service and not an economic one. We are passing from the day when it was more heroic to cure a disease than prevent it. The determination of the cause of disease and the removal is being emphasized more and more. It is the line of real epoch making development.

Slowly but surely the state is becoming the instrument for disease eradication and health preservation. For this duty it is yet poorly equipped and poorly organized. Laws have been passed haphazard and as expedients and no well conceived foundation has been laid for an enduring structure. The time is ripening for accomplishment and the day is not far off when each state will have an efficient organization for health conservation—and also the nation.

It is evident that there is a process of socialization going on and that medicine is succumbing to this influence. State medicine will be the ultimate result. The obstacles to this end are

disappearing one by one and it is less irrational and impracticable. So deep rooted is our confidence in established institutions that it is difficult to conceive of so radical a departure as being workable or beneficial; however, the trend is that way and should not be shied at but have serious consideration and direction. Various philanthropic agencies are pointing that way.

It is only a question of time when the National Government will institute a Department of Health with cabinet representation and consequently more power and efficiency than the present Marine Hospital and Public Health Service, which has been an admirable substitute for a more influential and constructive organization. Under the guidance of men with a broad grasp of present and future requirements, New York has provided for a skeleton organization which is in harmony with the evolution of State Medicine. As our President has said, it is hoped and expected that this will be a working model for other states. Already the Governor of Kansas has appointed a commission to study the New York law and make a recommendation of a similar plan for enactment into law in that state. Soon the field of preventive medicine will be covered by the state and the step is then a short one to the assumption of clinical medicine by the same agent. Like the government ownership of public utilities, however obnoxious the contemplation may be, and however it may violate our preconceived notions, such a consummation is in prospect and the goal will be reached in spite of us if not with our co-operation. The new order of things is at hand and we must adapt ourselves to it.

There are accumulating examples of the practicability and advantage of supervision of sanitation and care of the sick by salaried officers. Results have been attained which would have been impossible by a privately maintained profession. The Panama Zone could not have been made habitable and devastating disease stamped out except by a military organization. The same was true of Havana and Manila.

The British National Insurance Act, while restricted in its application, and registration for its benefits voluntary, has been a success in spite of the opposition and prediction of failure by a dissatisfied and rebellious profession. That the objections made to it have not proved valid is evidenced by the fact that out of 22,500 general practitioners in Great Britain, 20,000 are now upon the panel, and serving one-third of its population—about 4,000,000.

Many industrial establishments, where the community is largely made up of its employees, exact a periodic contribution from them which is used to protect their health and provide medical attendance in sickness by a salaried officer. I know of no instance in which this plan has been a cause of general dissatisfaction.

We have in our midst a fair illustration of what can be done in caring for the health of a considerable population. More than 6,000 students through a definite contribution, maintain the University Health Service. They have in large per cent availed themselves of the service for which they pay and I have heard no complaints. It is in effect the conferring upon an adequately equipped officer the duties now assumed by the family practitioner or adviser. The objection to be urged to it are largely sentimental as has been proved. The theoretical loss of that sympathetic relationship with this clientele which has been the tradition of the family doctor, together with a restricted power of selection, is repulsive to us. The advantage must outweigh

these considerations but the change will creep upon us almost unawares until we finally awake to the new order. In such a scheme the specialist would retain his independent existence under rigid credential requirements. Individual incentive and initiative would in no particular be impaired but worth would have its just recognition and reward, and equipment would be gauged by true standards with resulting benefit to all.

The closer relation of the profession to the public weal should be a vast economic gain and the practitioner would be removed from the anomalous position of trying to destroy that by which he lives and profits.

It is hoped and expected that our state may soon follow the example set by New York, Maryland, Massachusetts, etc., and provide for supervision of public health by districts. This plan was first proposed in our state by Dr. Vaughan, but so radical a departure from custom necessitates the instruction of the public in its purpose and benefits before it will be accepted and adopted. There has been very encouraging progress made toward this end and it is possible the next legislature may be persuaded to seriously debate the passage of a law providing for supervision of health of districts by a full time, well paid, and well equipped officer. This would be a beginning and ground work for State Medicine.

The generally accepted notion of liberty has been narrow and falsely selfish. It should be in more uniform accord with the principle that that which benefits the whole is best for the individual. After the infectious character of tuberculosis was determined and it was made plain that every case of open tuberculosis was a public menace, it was a long, tedious road to the education of the masses to a cheerful acquiescence in the adoption of the safeguards to its spread.

Every step forward has been taken in the face of determined opposition, and with science clearing the way for lasting construction. So it will be in the evolution of State Medicine, but come it will sooner or late, amplified and complete. Sometime the cure of disease will be as much a state function as the protection against disease. Each health unit will have its health guardian, its physician, its laboratory, and its hospital, and be subservient to central control. Its corps will work in harmony to prevent and cure disease. There is abundant evidence of awakening to this tendency. A recent article in a science magazine treats the subject somewhat unfairly, but shows that thinking men are considering the problem.

One of the most potent influences in this country is the Women's Clubs and the fact that they are discussing the matter emphasizes its importance and the approach of the solution.

A late novel makes State Medicine a theme, and its advocacy its apparent purpose. The medical profession is looking with more favor upon such a plan, giving it temperate and earnest consideration. These and a thousand other agencies are cultivating the ground for growth and development.

Those of us who have for the past thirty years watched the progress of medicine have noted the narrowing field of the general practitioner. The lessening confidence in drugs and the increasing reliance upon preventive medicine, the growth of specialism, and the understanding by the people of the self limited character of most acute maladies have all been instrumental in reducing his resources; however, it is not in him we should be interested except as he is essential to the general good. From this viewpoint he must survive but as an agent of the state and not in a

private capacity. The temptations to which he is now subjected and the oft times questionable methods to which he resorts will be removed. The dignity of his calling will be better appreciated and better sustained.

DR. GUNN, Boston:

The medical publications show the great effort in life extension which is going on in all parts of the world. I had a letter a few days ago from a prominent medical officer of Michigan who is in a large English city, and he said: "The question has come up to me whether or not the efforts which we are carrying on in our city to save children from preventable diseases is worth while if they are going to be killed by preventable bullets twenty years after." And it is a serious question. The trained man and woman in public health work is a comparatively new feature. It was only very recently in this country that a special course was devised to train men and women for this work. Now that the work has started we find it difficult to get enough trained men and women to do it, and today our state boards of labor are absolutely unable to get trained men or women to do this work.

A great deal has been said already about the eradication of politics from public health work and a great deal will be said in the future on that line. In the great bulk of the states politics is of supreme significance. Public health work should not be made a political football in political caucuses as it frequently is at the present time. The Harvard University of Medicine and the Massachusetts Institute of Technology have recently started a school to train health officers. It started last year. The school was not advertised until it was practically ready to open. The registration was light, only eight men. Next year we anticipate that 25 men will come there to take this course and getting a C. P. H.—certificate of public health. These graduates will be doctors who are particularly interested in public health work.

The field for these doctors will undoubtedly be a large one. Many of the doctors of today would take this work were there chances of getting busy in real service work without political interference. They ask if they can take the position and feel sure that it is free from politics, and unfortunately we have to say that at the present time at least the chances of getting a position free from politics is practically negligible. Now trained men before going into public health work have got to have an idea of what public health work is. The average citizen thinks that public health work is to go out and inspect the streets and alleys. In many of our cities that is the chief function of the health departments. If a small city like Lansing has a few thousand dollars it is public health work to spend that money in a way that will bring results, namely, the prevention of premature deaths by unnecessary diseases. We have, therefore, to educate the people as to what public health is at the present time and it is a very difficult problem. Even in cities where they have an efficient public health service, purified water supply and adequate hospitals, we still find a great mass of communicable diseases which even the efforts of the health department cannot prevent.

Have any of you health officers recognized the fact that a majority of cases of communicable diseases have never been traced to their source? We never know where they come from, and at present it is almost certain in many instances we can never expect to know. Contact infection is the most important method of infection, much more important than water and milk. The success of the work rests largely with the health officer. He may be trained to a degree and yet make a rank failure.

He must have diplomacy, tact and ability to have the people of the community behind him. He is sure to be a failure if he hasn't the personality behind him. He has got to be an educator, to be a public speaker to go before the people and tell them what he is trying to do. Most of the communities have little idea what health work really is and it takes intelligence to instruct the people the exact methods by which disease is prevented. Now if every doctor would consider himself an unofficial health officer in the community, don't you see that the health department would have a tremendous staff working all the time and teaching the people with regard to the prevention of contact infection? Don't you see the policy outlined by Dr. Vaughan, following up cases, finding constitutional diseases early, is going to prevent a great deal of disease in that direction? Ten years ago a great many health departments of this country were only interested in diseases caused by parasites. If a man is dead of a preventable disease of the kidneys he is just as dead as a man dead of tuberculosis. The health officer looks upon the community as a lot of machines. A great many people die of old age, and yet there is a majority that do not die of old age, but something has interfered with their machinery and caused one part to give out before the other. Dr. Wilbur referred to the fact that some years ago when they put scarlet fever on the list as an infectious disease there was considerable protest on the part of the doctors. That is a thing of the past; the great protest regarding tuberculosis is a thing of the past, the protest regarding venereal diseases in a short time will be a thing of the past. Public health is made up of units, personal health is public health, personal hygiene is public hygiene. If perfect health on the part of the farmer is considered he will not allow milk to be dirty, allow pollution to get into the well or brook or stream. If you are working for public health you are working for personal hygiene, individual, clean, sanitary living and if each individual would follow that out public health problems would be largely solved. Health doctors to be successful must expect to train the individuals they come in contact with in the laws of personal hygiene.

INFANT FEEDING.*

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Following the birth of a baby there occurs normally a certain sequence of events: the breasts, responding to the stimulation of certain hormones, take on physiological activity, and in about three days lactation is completely established.

A child is never born hungry; on the contrary, its blood contains enough sustenance to nourish the baby until the mother's breasts functionate.

I should say in parenthesis that most of the facts which I shall use are drawn from the established teachings and practices of Finklestein and Czerny of the *Kindersyl and Charite'* in Berlin and Sluka and Pirquet of the *Kinderspital and Allgemeines Krankenhaus* in

Vienna and that most of the conclusions are so firmly established as to be accepted by all of these men and their assistants.

For the first few days the baby is put to the breast not to exceed six times at four-hour intervals; this number is, in a couple of weeks, reduced to five feedings at the hours of 6 and 10 a. m. and 2, 6, and 10 p. m. This interval has been arrived at after much discussion but is now the generally accepted one and has the support of not only the clinicians but of the physiologists as well; the four-hour feeding interval is now in use in an increasing number of the infant hospitals in this country. The baby is given the breast alternately unless the amount is small or the child not able to empty the breast in which case both are given at each feeding.

While nearly all mothers can nurse their babies, the number of exceptions is greater than the statistics of many of the hospital men would indicate. Diphtheria, tonsillitis, pneumonia, and typhoid, unless especially severe, are not accepted as contraindications to a mother nursing her baby. For six months a baby does well on mother's milk alone; beyond this age more elements are needed than are so supplied and gradually gruels, soups, and stewed fruits are added to the diet.

Next to the milk of the baby's own mother is that of a wet nurse; this method of feeding is, for obvious reasons, prohibitive except in unusual cases. The conditions governing the employment of a wet nurse are too well known to need discussion; there is, however, an observation which may be made: that is, it has been definitely shown that the age of a wet nurse's baby bears no relation to the suitability of her milk for another child; for example, a wet nurse with a baby eight months old can properly nurse a baby one month old and the baby assimilates the milk as well as that of a wet nurse who has been secreting milk for only one month.

As a general thing, when a mother can not or does not nurse her baby we must look to cow's milk for a practical substitute; because of the difference between cow's milk and human milk some modification of the former must be made to fit it for the child's consumption and the nature of this modification has always been a live question with the physician.

Briefly, the difference between the two is that cow's milk contains much more albumin and salts, slightly more fat, and much less sugar; that is, human milk has 10 grams of albumin, 40 g. fat, 70 g. of sugar and 0.2 gm. of salts to 1000 cc. while cow's milk has 30, 35 and 45 of the first three respectively and 0.7 gm. of salts.

In even numbers albumin has 4 calories to

*Read at the Annual Meeting of the Upper Peninsula Medical Society held in Houghton, Aug. 10-11, 1914.

the gram, sugar has 4 and fat 9; this totals 680 calories per liter for human milk and 615 for cows'; for convenience 650 is used as the caloric content of each.

The normal child requires 100 calories per day per kilo body weight; the total ingestion of fluids should be 250 cc. per kilo per day, relatively decreasing as the age advances. For convenience in determining body weight for a given age a birth weight of 3000 grams is taken and 600 grams added for each month of age.

It becomes now a simple matter of mathematics to determine the proper amount and composition of the food for the normal baby of a given weight or age; for example, a baby of four months should weigh four times 600 grams (the monthly gain) or 2400 grams, which, added to the initial weight of 3000 grams gives 5400 grams, or 5.4 kilos as the weight upon which to base feeding calculations; the quantity of fluid should be five times 250 or 1250 cc., and the caloric value should be five times 100 or 500 calories; as a rule the caloric necessities are based, not upon the child's actual weight, but upon the normal weight for the given age. The usual dilutions used are one-third whole milk up to two months, one-half up to four months, two-thirds up to six months and whole milk thereafter.

What element contained in cow's milk is responsible for the difficulty in fitting it to the needs of the infant?

The most frequently advanced theories are the following: Biedert claimed the trouble to lie in the difference in the albumin content, both quantity and quality, believing that the casein clumps present in the stool were the nidus of bacterial infection. This is combatted by the fact that large quantities of the albumin of cow's milk may be fed to severely sick babies with advantage.

The difference in bacterial content: this is not the great difference between the two as it is shown that the most aseptic handling does not decrease the difficulty of digestion of cow's milk when such difficulty exists. Hamburger believes that the albumin is the cause of the trouble, basing his belief upon the fact that every foreign albumin is toxic when injected into the blood of the human. Theories based upon the difference in fats and sugars have been advanced, most of them to be latter disproved. A present accepted theory is that of Finklestein, who believes that the fats and sugars of cow's milk are not taken care of because of the difference in molecular concentration; the molecular concentration is determined by the presence of salts which in human milk is 0.2 per cent. and in cow's is 0.7 per cent. Cell life depends upon molecular concentration

and the infantile mucous membrane is injured by the 0.7 per cent. saline liquids of cow's milk when used in place of the accustomed 0.2 per cent. saline mother's milk; function is interfered with and the fats and sugars are not properly taken care of, not because of some inherent quality in themselves, but because of decreased functional ability of the intestinal canal due primarily to the excess of salts.

To demonstrate this Finklestein separates human and cow's milk into curds and whey; the curd contains the casein and fat while the whey contains the water, sugar and salts. Now if the highly saline whey of cow's milk be used with the curds of mother's milk the difficulties of digestion remain unchanged, but if the whey of the human milk be used with the curd of the cow's milk digestion is as easy as with mother's milk. This result is constant and seems to eliminate the fat and albumin as the chief source of trouble.

Of prime importance in infant feeding is, of course, the sugars; these are the cause of a large percentage of diarrheas because of their fermentation causing irritation and consequent increased peristaltic action of the bowel; the resultant stool shows large masses of undigested casein and fat and leads sometimes to the conclusion that the food contains too large a percentage of albumin; a reduction in these elements with no change in the sugar percentage serves only to still further confuse the situation as the character of the movement remains unchanged; a decrease in the quality or change to a less easily fermented sugar brings about a normal stool showing the sugar to have been the cause of the trouble.

Of the various forms of sugar, lactose has been favored because it approximates the natural food; it is, however, the most easily fermented of sugars and therefore most apt to cause trouble; saccharose is the cheapest and most easily obtained and stands midway as to fermentation between lactose and maltose; the latter is not best used alone but combined to form dextrine maltose is the ideal sugar in infant feeding as it can be used, when necessary, to give high sugar content with a minimum risk of over-fermentation with its consequent chain of troubles; dextrine maltose is now on the market and easily obtainable but it is much more expensive than other sugars. The minimum carbohydrate requirement is of importance; Rosenstern believes that the lowest amount of sugar necessary to sustain life is 1.5 per cent.

Of the greatest importance and of frequent use in children with excessive fermentation and other diarrheal conditions, is Finklestein's eiweiss or albumin milk. It is so frequently mentioned in medical literature and the formula

is so variously given that I give Finklestein's own formula for it:

To one liter of milk add one teaspoonful of rennet; let stand for twenty minutes at 50 centigrade (120 F.) The curd and whey are now separated. Put the curd in a fine linen bag and let it strain for about an hour or until the curd is dry. Now work the curd through a fine flour sieve adding gradually 500 cc. of water and 500 cc. of buttermilk; work repeatedly through the sieve until all is perfectly smooth and homogeneous—about five to eight times. This albumin milk remains good indefinitely if kept cool; it contains albumin 3 per cent., fat 5 per cent., and sugar 1.5 per cent. and has a calorie value of 450 per liter; up to the required percentage sugar is added as the milk is used. The preparation is not so difficult as would seem and it is given without further preparation and in one-third greater quantities than whole milk. The white lumps which appear in the stool have the appearance of albumin but are in reality casein.

The last word of a paper on infant feeding may properly be devoted to the side of breast feeding; the usual arguments in its favor require no repetition but Czerny and others have recently given us an additional argument in the fact that children fed on breast milk have a definitely greater resistance to infection than those artificially fed.

LOCAL ANESTHETICS.—SOME COMPARATIVE PHYSIOLOGICAL REACTIONS.

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The search for cocaine substitutes has brought out many local anesthetics of decided merit and for certain uses preferable to cocaine. In ophthalmic work or the anesthesia of unbroken mucous surfaces, cocaine is still the local anesthetic generally used; according to Buckley, it has scarcely a rival in any field; others (1) extol some other of the local anesthetics. For parenteral injection, there is little uniformity of opinion as to the best local anesthetic, in fact this is dependent upon the results desired: long or short anesthesia, rapidity of action, after period of numbness, etc. If it is desired to block impulses along nerves or to act as an ordinary local anesthesia largely on the nerve ending, then different anesthetics may be desired, as also when some of the side reactions as contraction of the capillaries, absence of vasoconstrictor

power or the interference with the hemostatic action of adrenalin (2) must be considered.

A great many investigators (3) have already contributed to this question but in view of the conflicting results, Dr. E. M. Houghton has suggested that the more meritorious local anesthetics be re-examined if only for corroboratory purposes.

The large mass of clinical data which has accumulated upon local anesthetics is of little help in understanding the value of the various preparations as it is always aimed to employ doses well within the safety zone, and as the degree of anesthesia above a certain minimum is indeterminate, it is found that much smaller doses are required than was at first supposed necessary. But this minimum dose or concentrations is always exceeded, so that it affords but an uncertain basis for studying comparative relations. Clinicians look carefully at the toxicity of a preparation yet a failure to appreciate the significance of the toxicity of a preparation is met with on every side. It is not the relative toxicity but toxicity relative to the desired activity or safety factor, not only with local anesthetics but other drugs as well, that should be considered. Quinine and urea hydrochloride is stated to be nontoxic (4). Toxicity tests on guinea pigs shows, however, that cocaine hydrochloride is only about six times as toxic as quinine and urea hydrochloride, yet there is no hesitancy in employing a 10 per cent. solution to do the work of a 1 per cent. solution of cocaine hydrochloride. According to test, such a solution of quinine is nearly twice as dangerous as cocaine. To be sure this is based on the toxicity to guinea pigs, and may not be so dangerous for man, but in any event it should not be looked upon as absolutely safe even if familiarity with quinine has bred contempt. Certainly a 50 per cent. quinine and urea hydrochloride solution should be used with due regard to the volume injected.

As a basis for comparison, the absolute values of the toxic and irritating properties of some local anesthetics when injected subcutaneously into guinea pigs were determined and are recorded in Table I. These *per se* have no value but in comparison with their anesthetic power are or should be the principle determining factor in the acceptance or rejection of a local anesthetic.

Considering the properties recorded in Table I, they take the following order as regards desirability:

Novocaine, beta eucaine, quinine salts, tropacocaine, stovaine, cocaine and alypin.

TABLE I.
Toxicity of Guinea Pigs When Injected Subcutaneously.

MATERIAL	Dose in g. per kg.	RESULTS		SYMPTOMS	LESIONS AT SITE	REMARKS
		Lived	Died			
Mercuric chloride 1 in 1000 water solutions.	0.005	4	0	Fur rough, list- less, weak.	Congestion, infil- tration appears necrotic.	Death in 3 to 4 days.
	*0.008	0	2			
	0.01	0	3			
	0.02	0	5			
Cocaine hydro- chloride 1 in 50 and 1 in 100 water solution	0.03	3	1	Excitable, spas- modic convul- sions Death thru failure resp.	Inflammation, very slight.	Death in 20 min.
	0.04	5	1			
	*0.05	2	6			
	0.06	0	3			
Alypin (hydro- chloride) 1 in 100 water solution.	0.03	1	0	Excitable same picture as with cocaine. Death by failure resp.	Inflammation marked.	Death in 1 hour.
	0.04	3	0			
	0.05	3	1			
	*0.06	2	4			
	0.07	0	3			
Stovaine (hydro- chloride 1 in 20 water solution.	0.1	3	0	Similar to co- caine; very rapid running move- ments. Death by failure resp.	Marked conges- tion.	Death in 20 min.
	0.15	2	0			
	*0.2	0	4			
	0.3	0	4			
Tropacocaine hy- drochloride 1 in 20 water solution.	0.1	3	1	Convulsive twitch- ings much like cocaine. Death by failure resp	Inflamed.	Death in 20 min.
	0.15	3	1			
	*0.2	1	2			
	0.3	0	1			
Chloretone and Urethane equal parts form a liquid sp. gr. 1.22.	.15	1	0	Prostrate com- pletely anaesthe- tized, fur rough.	Large infiltration with congestion.	Death in about 24 hrs.
	.20	3	1			
	*.30	1	4			
	.40	0	1			
	.50	0	2			
Quinine† mono- chloride, 1 in 40 water solu- tion.	0.1	1	0	Excited Inco-or- dination, spasma- dic convulsions.	Inflamed not as large infiltration as with the urea salt.	Death in about 24 hrs.
	0.2	4	1			
	*0.3	2	3			
	0.4	0	3			
Quinine and urea hydrochlor- ide 1 in 10 wa- ter solution.	0.1	2	0	Spasmodic convulsions.	Inflamed area ap- pears necrotic.	Death in 15 to 30 hrs.
	0.2	7	3			
	0.3	7	7			
	*0.4	1	9			
	0.5	1	6			
Beta Eucaine 1 in 40 water solution.	0.1	1	0	Convulsive twitchings	Congested, ap- pears necrotic.	Death in 1 to 3 days.
	0.25	1	0			
	0.30	3	1			
	*0.40	0	3			
	0.5	0	2			
Novocaine hydro- chloride 1 in 20 water solution.	0.2	2	0	Convulsive twitchings	Slight inflamma- tion.	Death in 1 to 24 hrs.
	0.3	3	0			
	*0.4	0	5			
	0.5	0	1			
Chloretone in olive oil 1 in 10 and 1 in 20	0.25	1	0	Prostrate, com- pletely anaesthe- tized.	Considerable in- flammation.	Death in 3 to 48 hrs.
	0.3	4	1			
	*0.4	1	3			
	0.5	0	5			
	0.7	1	5			
Brometone in olive oil 1 in 20.	0.3	3	0	Prostrate, com- pletely anaesthe- tized.	Inflammation marked.	Death in 5 to 36 hrs.
	*0.4	0	2			
	0.5	0	2			
	0.6	0	1			
Phenol 1 in 100 water solution.	0.2	1	0	Tremors and twitching.	Inflamed slightly.	Death within 24 hours.
	0.4	2	0			
	0.5	5	1			
	*0.6	1	5			
	0.7	1	5			
Para-phenyl-sulphonic salt of ethyl para- amino-benzoate 1 in 50 water solution	0.6	1	0	Prostrate, no con- vulsive strug- gles.	Small infiltration, no inflammation.	Death within 2 days.
	0.7	4	1			
	*1.0	1	4			
	1.5	0	2			
Ethyl-para- amino-benzoate in olive oil 1 in 20.	1.0	2	0	Prostrate no struggles.	Infiltration, no inflammation.	Death in 24 hours.
	1.1	2	0			
	*1.2	1	2			
	1.3	0	2			
	1.5	0	1			
Potassium sul- phate 1 in 25 and 1 in 50.	1.0	4	1	Drowsy no strug- gles or hyper- sensitiveness.	Infiltration rather inflamed and necrotic with the large doses.	Death in 24 to 72 hrs.
	1.5	4	3			
	*1.8	0	2			
	2.0	2	4			
	2.3	0	2			

*Minimum Lethal dose.

†A very small amount of hydrochloric acid was sufficient to bring into solution which was practically neutral to litmus, no trace of acidity.

The irritant properties of alypin places it last, notwithstanding its being slightly less toxic for the guinea pig than cocaine, also quinine may well be considered less desirable than tropacocaine on account of its irritant action and the quinine and urea hydrochloride less desirable than quinine hydrochloride. The other substances in the table are not strictly local anesthetics although they act as such on the motor nerve of a frog.

METHOD OF COMPARING ANESTHETIC ACTION.

Anesthetic action was compared in two ways, by the degree and duration of the anesthesia produced in the conjunctiva of a rabbit by dropping the solutions in the eye and by the character of the action of the solution upon the irritability of the nerve muscle preparation of the frog. This data on the ophthalmic method is collected in Table II.

The ophthalmic method while more comparable with the practical requirements, in that it is dealing with sensory nerves, on the other hand requires the penetration of unbroken mucous surfaces.

The degree of anesthesia produced in the conjunctiva was determined by the amount of electric current necessary to cause a reflex movement of the eyelid, always using the opposite eye as a control. The stimulating current was applied to the conjunctiva close to the edge of the lid using blunt platinum electrodes three millimeters apart.

The source of the current was an induction coil with 300 turns on the primary, of one ohm resistance and 13,000 turns on the secondary of 2,550 ohms resistance. The regular lighting circuit D. C. 110 volt was led through a sixteen candle power, carbon filament lamp to the primary coil and ordinary magnetic make and break

TABLE II.
Table of Ophthalmic Experiments With Rabbits.

MATERIAL INSTILLED INTO EYE	per cent. sol.	Irritability Control eye	Record in Cm. at Which Secondary Coil just stimulated.										REMARKS
			Treated Eye After Interval of:										
			0 min.	5 min.	10 min.	15 min.	20 min.	30 min.	45 min.	60 min.			
Cocaine hydrochloride water solution	2	21	21	20	20.5	22	21.5		23	2	Pale, then slight inflammation, no hypersecretion.		
	5	23	23	21	21.0		23			23			
	5	23.5	23.5	20.5		21.5		23.5					
	10	22	23.5	22		22.5		23.5					
Stovaine water solution	5	22.5	23	19	23	20.5	23.5	20.5			Inflamed, hypersecretion.		
	5	23.5	23	22				23.5		23.5			
Tropacocaine hydrochloride water solution	5	22	22	21	20.5	19.5	21.5	20.5		21.5	Very slight inflammation and hypersecretion.		
	5	22.5	23					22.5		23			
Alypin hydrochloride water solution	1	20.5	21	20.5		20		21			Vessels injected. Persistent inflammation		
	3	21	21		21			21		21			
	5	24.5	24.5	23.5	24	24	25.5	27	25	25.5			
Beta Eucaine hydrochloride water solution	4	23.5	23	22.5	22.5	23	23.5	23.5		23.5	Slight inflammation, hypersecretion.		
Novocaine hydrochloride water sol.	5	27	27	27		26			25	28, 1¾ hr.	Very slight inflammation, no hypersecretion.		
Paraphenyl sulphonia salt or ethyl p. minobenzoate water sol.	2	22	22	24		23			22		No inflammation, very slight hypersecretion.		
Quinine and Urea hydrochloride water sol.	10	20	20				18	16	17	20	20, 2 hrs.	Marked congestion and hypersecretion.	
	10	22	22				21	21					
	5	23.5	23.5	23.5	23.5	20	23	22.5	12.5	22.5	23.5, 2 hrs.		
Quine hydrochloride water sol.*	5	21	21		18	19		18		18	17, 2 hrs.	Marked congestion, but less than above, and hypersecretion.	
Olive oil		23	23	21.5		21.5			22	21.5	22, 2 hrs.	Normal.	
Castor oil		23	23	20.5		21.5			21.5	21.0	22, 2 hrs.	Normal.	
Chloretone in castor oil	20 20	19 23	19 23	21	15	22		16	22			Congestion.	
Ethyl paraaminobenzoate in castor oil	2½	21	21		20		19.5			21	21, 4 hrs.	Very slight inflammation.	
	5	22	22.5		21		21	21.5		21.5			
Ethyl paraaminobenzoate in olive oil	5	23.5	23.5	22	23		22.5			22.5	21.5, 2 hrs. 21.0, 4 hrs.		

*The monochloride with just sufficient hydrochloric acid to bring into solution (reaction neutral to litmus.)

mechanism. By inserting a thirty-two candle power lamp as a shunt, around the apparatus all burning of the platinum contacts was avoided, the maximum potential being reduced to forty volts and the minimum to 0.25 volts. As the resistance of the primary with leads was one ohm the maximum current was 0.25 ampere. With the circuit breaker in action twenty-eight to twenty-nine volts were recorded depending on the position of the secondary.

The least current that could be detected when the electrodes were placed on the tip of the tongue was that given with the secondary coil twenty-five centimeters distant from the primary. In all experiments stimulation was applied by opening a short circuit in the secondary for a fraction of a second only.

The results with this ophthalmic method are very unsatisfactory (5) for determining anesthetic power, as can be observed by consulting Table II. The small change in current is a little surprising as mechanical stimulations often will not show any signs of sensation. The value of oil solutions is in general uncertain as oil alone necessitates a greater current for stimulation. However, the strong chloretone solution is undoubtedly markedly anesthetic but the irritation of such a strong solution nullifies its practical value.

Of the water soluble anesthetics cocaine and tropacocaine are powerful and but slightly irritating; alpin, stovaine, and beta eucaine are fairly efficient anesthetics but are more irritating; quinine salts while distinctly anesthetic are very irritating in strength (3% or over) exhibiting anesthetic power to the unbroken mucous membrane. Novocaine and ethyl, p. ammino benzoate while non-irritating possess but weak anesthetic power.

It would appear that none of these examined are as efficient as cocaine for anesthesia of unbroken mucous surfaces, however, in ophthalmic work the dilation of the pupil may be a disadvantage and one of the next four be preferred (6).

The effect on motor nerves and nerve endings while not absolutely comparable with sensory nerves and nerve endings gives nevertheless exact data for comparative relations which clinically (7) are also found to hold for the sensory nerves.

In some qualitative comparisons on the effect upon the sciatic nerve and gastrocnemius muscle of frogs I failed to obtain the same results as reported by L  wen (3).

The whole series was, therefore, examined using the Leopard frog (*Rana pipiens*) and to be comparable also the large *Rana Catesbeiana* from New Orleans.

The animals were decapitated, skinned and the sciatic nerve carefully dissected out as far

as the gastrocnemius muscle which was left intact. The central end of the nerve was tied and cut off just before it enters the pelvic girdle, and stimulation was applied only to this smooth nerve trunk. This part of the nerve between the thread and muscle was laid in loops made in the end of six platinum wires which acted as electrodes. These loops or hooks were arranged five millimeters apart the first electrode coming as near the muscle as possible and the nerve was stimulated across each of these internals. That nearest the muscle is designated A then follow B, C, D, D, the E being nearest the central end of nerve. For convenience of manipulation an apparatus much like that described by L  wen (3) was used, the electrodes being fixed to a hinged piece so that the nerve could be easily raised and lowered. This allows stimulation at the same point each time without handling. To further facilitate the readings a two armed switch was fitted to the board so that

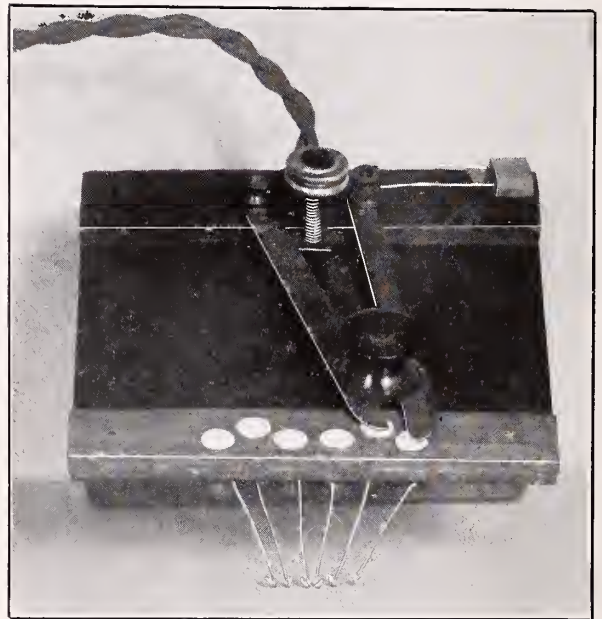


Fig. 1. Induction coil for determining amount of anesthesia.

any two adjacent electrodes can be immediately connected for stimulation. The apparatus is seen in illustration.

The current given by a secondary coil as well as the available stimulating current is dependent upon many factors as has been very well pointed out by Martin (15), however, without going into such details cognizance may be taken of the fact that for practical purposes the secondary current varies inversely as the square of the distance. As the secondary is brought closer to the primary this relation is less exact but still gives more comparable relations than linear comparisons.

Stimulation was applied by means of the induction coil the same as with the conjunctiva experiments. However, in the following pro-

tocols and curves, instead of recording the maximum distance at which the secondary coil would deliver a stimulating current the inverse square of the distance is record in terms of units. The unit being the current given by this particular coil connected as described when the secondary is 100 centimeters from the primary. The units = $(100/X)^2$, X being the distance of the secondary from the primary. For instance if X = 25 centimeters then $(100/25)^2 = 16$ units.

The conductivity changes in the nerve are apparent from comparison of the minimum stimulating current at A, B, C, D and E and the irritability by the magnitude of minimum stimulating currents. The direct stimulation of the muscle is recorded as M and allows a differentiation of the effect on nerve ending and on the muscle tissue.

Typical of a number of experiments where Rana Pipeins 20 to 30 g. were used are the results seen in Table III. Even one-tenth of this strength gives no recovery in over an hour, as seen in Table IV. Lawen, however, left preparations in 5 per cent. cocaine hydrochloride for an hour without extinction of the irritability.

TABLE III.
5% Cocaine Hydrochloride.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	2.4	2.4	2.5	2.5	2.5	16	Normal
Replaced by 5% Cocaine Hydrochloride.							
5 min.	Nothing at 100					35	
5 min.	Replaced by Ringer's solution						
15 min.	Nothing at 100					50	
30 min.	Nothing at 100					50	
120 min.	Replaced by fresh Ringer's solution						
120 min.	Nothing at 100					80	
5 hrs.	Nothing at 100					35	

TABLE IV.
1/2% Cocaine Hydrochloride.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	2.5	2.4	2.5	3.0	2.7		Normal
Replaced by 50 cc 1/2% (a) Cocaine Hydrochloride							
5 min.	5	5	6	12	5		
15 min.	Nothing at 100						
15 min.	Replaced by Ringer's sol.						
25 min.	Nothing at 100						
35 min.	Nothing at 100						
70 min.	Nothing at 100						

That the Rana pipeins are not especially susceptible is seen in V and VI where the large frogs from New Orleans were used.

TABLE V.
5% Cocaine Hydrochloride.
Frog of 530 G.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	6	6	6	5.5	5	15	Normal
Replaced by 200 cc 5% Cocaine Hydrochloride.							
5 min.	9	6	6	9	7	25	
15 min.	Nothing at 100						
15 min.	Replaced by Ringer's solution						
25 min.	Nothing at 100					35	
40 min.	Nothing at 100					25	
55 min.	Nothing at 100					30	
115 min.	Nothing at 100					40	

The control leg had remained unchanged and was used in VI.

TABLE VI.
1/10 Cocaine Hydrochloride.
Control Leg of V. Frog of 530 G.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	5	6	6	6	6	18	Normal
Replaced by 1/10% (a) Cocaine Hydrochloride.							
15 min.	7	12	9	9	9	35	
25 min.	70	100	90	90	90	40	
25 min.	Replaced by Ringer's solution						
40 min.	70	100	100	100	100	37	
75 min.	50	100	90	90	70	30	
95 min.	30	70	50	50	35	30	
125 min.	25	70	40	25	25	30	

The recovery with the nerve muscle preparation of the large frog is seen to be slower than with that of the small frogs of VII as would be expected from physical considerations. The plotting of the time as abscissas and units as ordinates gives a much clearer idea of the character of reaction than the tables of figures and has been done with the representative tables for the different anesthetics.

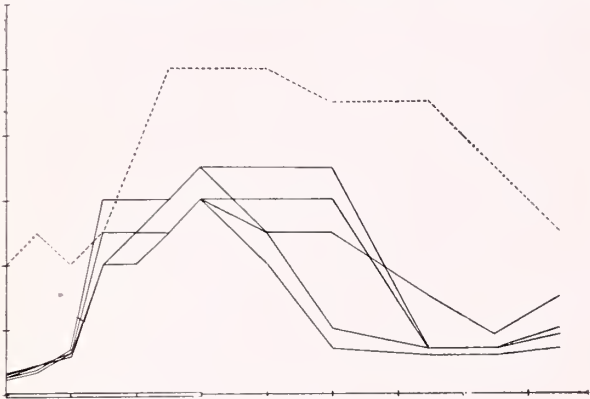
TABLE VII.
1/10% Cocaine Hydrochloride.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	3.2	3.4	2.7	2.7	2.5	20	Normal
Relaced by 1/10% (a) Cocaine Hydrochloride.							
5 min.	4.5	4.5	4.5	4.0	3.6	25	
10 min.	6	6.5	6.5	7.0	6.5	20	
15 min.	20	20	20	30	25	25	
20 min.	20	20	25	30	25		
25 min.	25	25	25	30	30	50	
30 min.	30	30	30	35	35		
30 min.	Replaced by Ringer's solution						
40 min.	20	25	30	35	25	50	
50 min.	7	10	30	35	25	45	
65 min.	6	7	7	7	15	45	
75 min.	6	7	7	7	9	35	
85 min.	7	9	9	10	15	25	

The photograph VII shows a number of points in connection with the specific action of cocaine on the nerve elements. The most obvious is that the effect on nerve endings is more rapid than on the nerve fibre so that during the immersion the action on the nerve fiber is masked but appears when placed in the Ringer's solution, the recovery from the effect on the nerve endings is also rapid and more rapid than the recovery of the fiber so that the decreased

conductivity of the nerve fibre is distinctly seen. I believe Mosso & Frank (*Arch de. Physiol*, 1892, p. 562) first observed such an affinity between cocaine and nerve tissue.

A more specific affinity is seen with tropacocaine



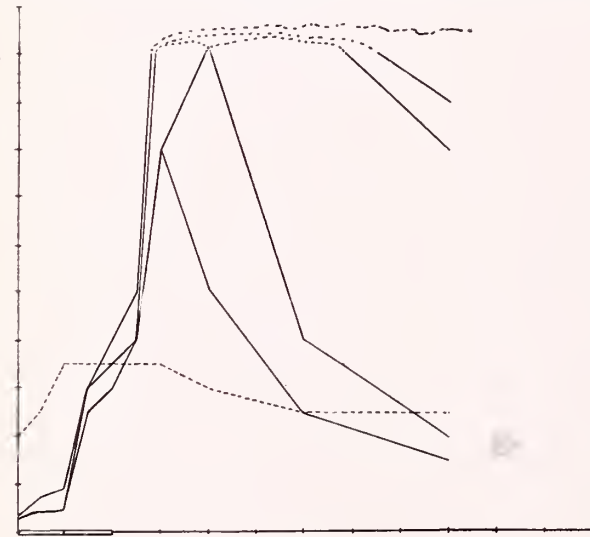
VII.

VIII where the action on the muscle tissue is slight so that the masking of the lowered conductivity is surely due to an action on nerve endings.

TABLE VIII.
1/10% Tropacocaine Hydrochloride.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	3.4	3.4	2.7	3.0	3.0	20	Normal
Replaced by 50 cc 1/10% (a) Tropacocaine Hydrochloride.							
5 min.	3.8	3.4	3.8	3.4	7.0	25	
10 min.	4.5	4.5	4.5	4.5	9.0	35	
15 min.	25	30	30	30	30	35	
20 min.	30	35	35	35	40	35	
20 min.	Replaced by Ringer's solution						
25 min.	40	40	40	40	50	35	
30 min.	80	100	80	100	100	35	
40 min.	50	100	100	100	100	30	
60 min.	25	40	100	100	100	25	
60 min.	Replaced by fresh Ringer's solution.						
90 min.	15	20	80	90	100	25	

The action of tropacocaine is also rapid and energetic and although more closely related to cocaine in chemical structure than beta eucaine yet



VIII.

in physiologic response beta eucaine is closer to cocaine. Apparently tropacocaine is nearly as active as cocaine while beta eucaine is easily seen to be weaker. IX.

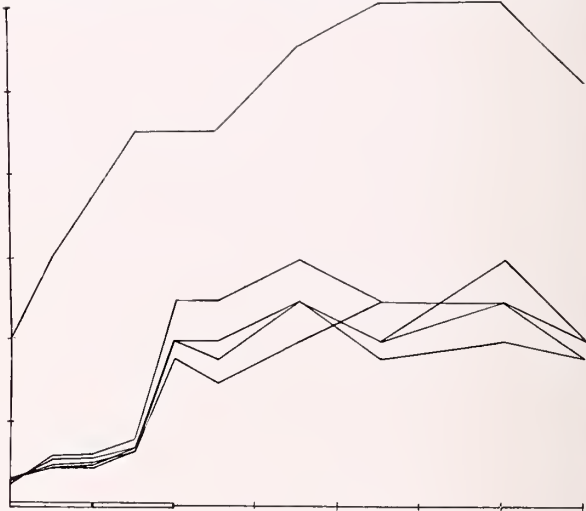
It takes longer to produce its effects but when once established (X) the recovery is slow.

TABLE IX.
1/10% Beta Eucaine Hydrochloride.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	1.6	1.8	1.7	2.7	2.2		Normal
Replaced by 50 cc 1/10% Beta Eucaine Hydrochloride.							
5 min.	3.0	3.5	7.0	12	8		
10 min.	3.5	8.0	12.0	16.0	14		
15 min.	20	30	30	35	25		
15 min.	Replaced by 50 cc Ringer's solution						
25 min.	35	35	40	35	30		
35 min.	30	25	30	30	30		
35 min.	Replaced by fresh Ringer's solution						
60 min.	7	12	20	45	20		

TABLE X.
1/10% Beta Eucaine Hydrochloride.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	3.0	3.0	3.0	2.7	2.2	20	Normal
Replaced by 50 cc 1/10% (a) Beta Eucaine Hydrochloride.							
5 min.	3.4	3.6	3.4	4.5	5.0	30	
10 min.	3.4	4.0	3.6	4.5	5.0		
15 min.	6.5	6.5	7.0	7.0	8.0	45	
20 min.	18	20	20	20	25	45	
20 min.	Replaced by Ringer's solution						
25 min.	15	18	20	20	25	45	
35 min.	20	25	25	25	30	55	
45 min.	25	18	20	20	25	60	
60 min.	25	20	25	30	25	60	
80 min.	20	18	18	20	20	50	



X.

Novocaine being the least active of the anesthetics so far recorded the effect of a 5 per cent. solution might give the results reported by L  wen, however, as is seen in the table the result is the same as noted with cocaine.

TABLE XI.
5% Novocaine Hydrochloride.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	2.9	2.8	2.9	3.8	1.8		Normal
Replaced by 5% Novocaine Hydrochloride							
5 min.	100	100	100	100	100		No response after one min.
5 min.	Replace by Ringer's solution						
25 min.	100	100	100	100	100		
30 min.	Replaced by fresh Ringer's solution						
55 min.	100	100	100	100	100	60	
	Replaced by fresh Ringer's solution						
2 hrs.	100	100	100	100	100	55	

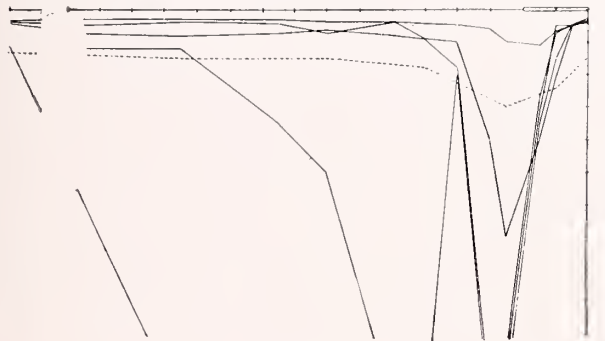
After one minute the 5 per cent. Novocaine solution has completely blocked the nerve impulse and upon replacing by Ringer's solution after five minutes no recovery is shown in over two hours.

When a 2/10 per cent. solution is used a picture very comparable with that of the other anesthetics is given.

TABLE XII.

2/10% Novocaine Hydrochloride.

Time Interval	Minimum Stimulating Amount in Units						Remarks
	A	B	C	D	E	M	
	3.2	4.0	2.5	2.4	2.7	15	Normal
Replaced by 50 cc 2/10% (a) Novocaine Hydrochloride.							
5 min.	5	5	4.5	5	4.5		
10 min.	6.5	20	5.0	7.0	15		24
15 min.	11	40	30	27	35		
20 min.	Changed to Ringer's solution						
25 min.	10	70	100	100	100		30
30 min.	6	40	100	100	100		
40 min.	4.5	10	18	20	100		
50 min.	4.0	9	9	100	100		18
60 min.	3.5	3.5	8.0	100	100		
80 min.	3.2	7.0	6.0	50	100		15
95 min.	2.7	4.0	7.0	35	100		
125 min.	2.7	3.5	8.0	12	100		15
155 min.	2.7	4.5	7.0	12	100		
18 hrs.	3.0	3.5	4.0	11	11		13



XII.

It is distinctly seen in XII that an attack on nerve conductivity is the principle mode of action so that novocaine should be very useful in the nerve blocking type of local anesthesia.

Quite different is the action of the closely related body anesthesin which acts very much like phenol.

The paraphenyl sulphonic acid salt of anesthesin (ethylester of paramino benzoic acid) is fairly soluble and shows an action largely upon the muscle and nerve endings. The character of the response is similar to that with phenol, showing a nearly constant plane of anesthesia with a given strength.

TABLE XIII.

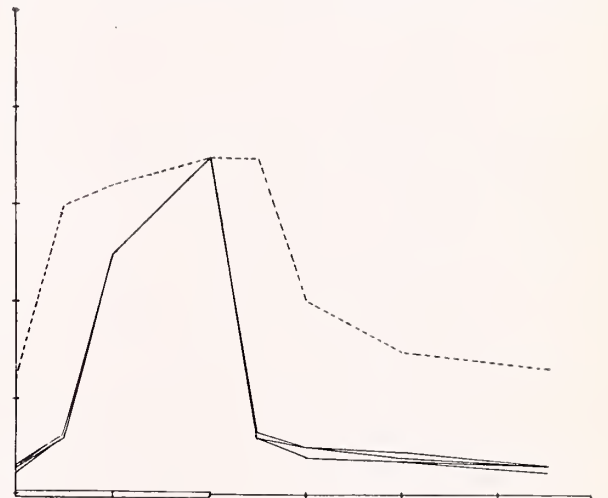
Paraphenylsulphonate of Ethyl P. Aminobenzoate.

Time Interval	Minimum Stimulating Amount in Units						Remarks
	A	B	C	D	E	M	
	3.0	2.9	3.0	2.7	2.7	12	Normal
Replaced by 50 cc 5/100% (a)							
5 min.	5.0	5.0	4.5	7.0	5.0		
15 min.	6.0	6.0	6.0	6.0	7.0		22
35 min.	6.5	6.5	6.0	6.5	7.0		30
35 min.	Replaced by Ringer's solution						
45 min.	4.0	4.0	4.0	4.0	4.5		15
55 min.	3.4	3.7	3.4	4.0	4.5		15
75 min.	3.0	3.0	3.0	3.4	3.0		12

TABLE XIV.

Paraphenylsulphonate of Ethyl P. Aminobenzoate.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	2.7	3.0	3.0	2.7	2.2	12	Normal
Replaced by 50 cc 1/10% (a)							
5 min.	6.0	6.5	6.5	6.5	6.0		30
10 min.	25	25	25	25	25		32
15 min.	30	30	30	35	30		32
20 min.	35	35	35	35	35		35
20 min.	Replaced by Ringer's solution						
25 min.	6.0	6.0	6.0	6.5	60		35
30 min.	4.0	5.0	5.0	5.0	4.0		30
40 min.	3.4	4.0	4.0	4.5	3.4		15
55 min.	3.0	3.0	3.0	3.0	2.3		13



XIV.

TABLE XV.

Paraphenylsulphonate of Ethyl P. Aminobenzoate.

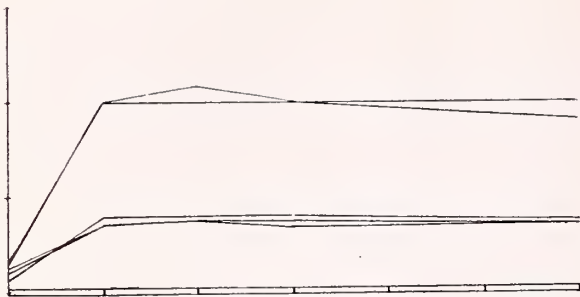
Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	2.3	2.2	2.1	2.1	1.8	12	Normal
Replaced by 50 cc 2/10% (a)							
5 min.	80	100	100	100	100		27
7 min.	Replaced by Ringer's solution						
10 min.	60	100	100	100	100		
15 min.	60	80	80	80	90		100
20 min.	13	45	23	30	40		
25 min.	16	11	16	15	21		70
30 min.	16	16	14	14	14		
40 min.	4.5	14	10	9	11		11
100 min.	4.5	9	10	9	10		12
160 min.	3.2	6.5	11	10	13		17

The equilibrium plane of anesthesia is clearly shown in tables XVI and XVII.

TABLE XVI.

Phenol.

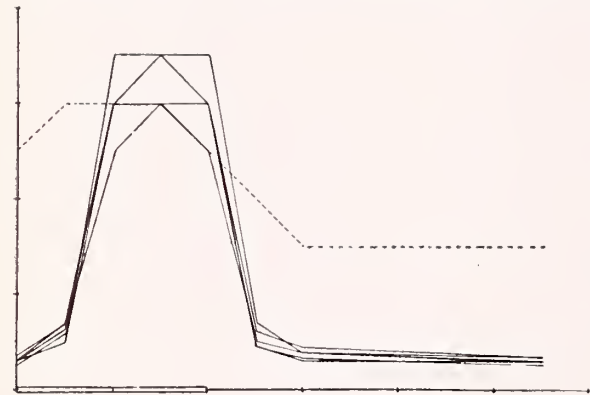
Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	2.4	2.1	1.9	3.0	2.7		Normal
Replaced by 50 cc 1/10% (a)							
10 min.	7	8	7	20	20		
20 min.	7.5	8	7.5	22	20		
30 min.	7	8	7.5	20	20		
60 min.	7	7.5	7.0	20	18		



XVI.

TABLE XVII.
Phenol.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	3.0	3.4	3.0	3.0	2.5	15	Normal
Replaced by 50 cc 2/10% (a) Phenol							
5 min.	5.0	7.0	7	6.5	6.0	30	
10 min.	30	30	25	30	35	30	
15 min.	30	35	30	35	35	30	
20 min.	30	30	25	30	35		
Replaced by Ringer's solution							
25 min.	4.5	4.5	5.0	6.0	70	30	
35 min.	3.4	3.0	4.0	4.5	4.0	15	
45 min.	2.7	3.0	3.4	3.4	3.0	15	



XVII.

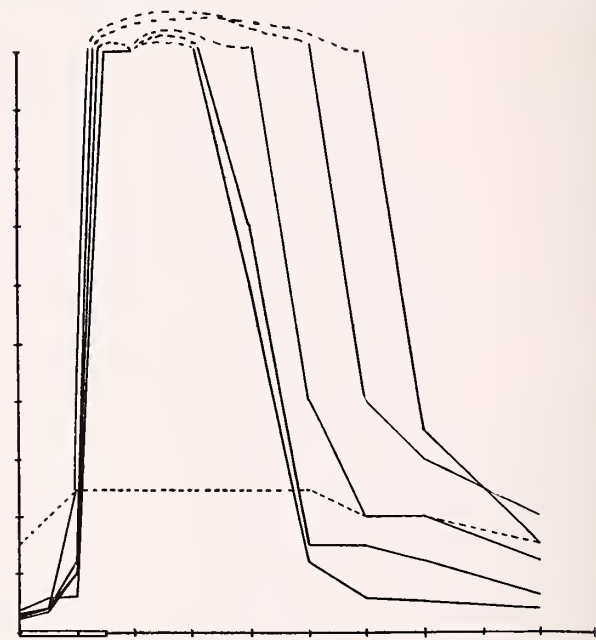
Stovaine shows a marked interference with nerve conduction, but very little action on the threshold irritability of the muscle tissue. The response to stimulation was, however, very small in magnitude, even with considerable increase in current.

TABLE XVIII.
1/10% Stovaine.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	3.8	3.4	3.0	2.5	25	15	Normal
Replaced by 50 cc 1/10% (a) Stovaine							
5 min.	5.5	4.0	4.0	3.4	3.0	20	
10 min.	1.0	10	12.0	10	25.0	25	
15 min.	100	100	100	100	100	25	
Replaced by Ringer's solution							
20 min.	100	100	100	100	100		
30 min.	None	at 100				25	
40 min.	60	70	100	100	100	25	
50 min.	12	15	40	100	100	25	
60 min.	6	15	20	100	40	20	
70 min.	5	12	20	35	30	20	
90 min.	4.5	6.0	12	15	20	15	

Alypin shows a greater reduction of muscle irritability than was exhibited by Stovaine and also an interference with nerve conduction; however, the

action on the nerve shows the difficultly reversible effect suggestive of quinine salts. The peculiar rigid condition of the muscle with toes distended



XVIII.

was also seen, which seems to be significant of quinine, and bodies which show the properties of a general protoplasmic poison.

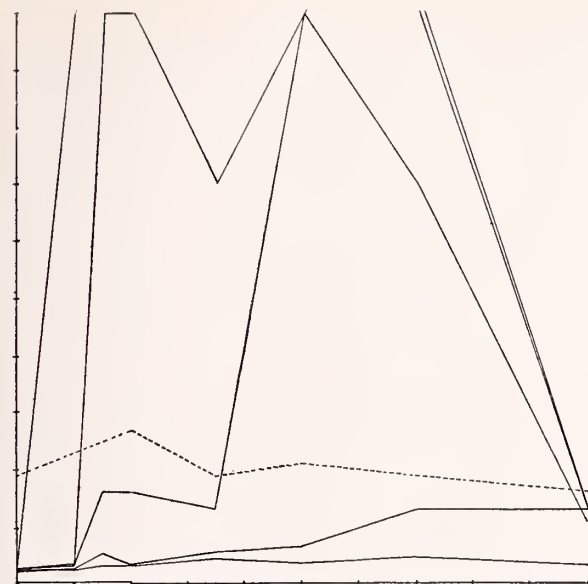
TABLE XIX.
1/10% Alypin.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	2.3	2.6	2.2	3.0	2.4	21	Normal
Placed in 50 cc 1/10% (a) Alypin.							
5 min.	3.2	3.0	3.5	3.0	3.0	35	
10 min.	3.5	4.0	3.2	4.0	4.5	35	
15 min.	4.5	5.0	4.0	5.0	4.5	35	
Replaced by Ringer's solution							
20 min.	5.0	6.0	5.0	5.5	5.0	30	Responses shallow even at 100
30 min.	5.5	6.5	8.0	5.5	11.0	25	Responses only a quiver at 100
40 min.	6.0	100	100	100	100	20	
50 min.	100	100	100	100	100	17	
80 min.	100	100	100	100	100	19	
120 min.	100	100	100	100	100	16	
180 min.	100	100	100	100	100	19	
16½ hrs.	100	100	100	100	100	20	

Even with very weak solutions, Alypin shows its affinity for nerve and muscle tissue.

TABLE XX.
2/100% Alypin.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	2.2	2.1	2.4	2.4	2.7	19	Normal
Replaced by 2/100% (a) Alypin							
10 min.	2.4	2.6	3.0	3.5	100		
15 min.	3.0	5.0	16	100	100		Toes distended, leg slightly rigid
20 min.	3.0	3.2	16	100	100	27	
Replaced by Ringer's solution							
35 min.	4.5	5.5	13	70	100	19	
50 min.	3.5	6.5	100	100	100	21	
70 min.	4.5	13	70	100	100	19	
100 min.	3.3	13	11	13	13	16	



XX.

Quinine salts attack the muscle tissue primarily, the muscle becoming rigid, the toes distended. An effect upon conductivity is also indicated in Table XI.

TABLE XXI.

2/10% Quinine and Urea Hydrochloride.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	2.8	3.0	2.6	2.8	3.4	14	Normal
Replaced by 2/10% (a) Quinine and Urea Hydrochloride.							
5 min.	2.8	3.0	2.4	2.8	3.4	21	Toes dis-tended
10 min.	3.4	3.0	2.5	3.2	4.0	30	
15 min.	2.9	2.8	2.7	4.0	5.0		
20 min.	3.0	3.0	2.7	3.7	6.0	35	
20 min.	Replaced by Ringer's solution						
25 min.	2.9	2.5	2.6	4.0	6.0	25	
35 min.	2.6	2.1	3.2	3.2	6.0	18	
45 min.	2.6	2.4	3.1	3.1	3.3	16	
70 min.	2.7	2.8	2.8	3.3	3.7	15	

With a stronger solution, Table XXII, the conductivity is seen to be markedly affected, but with no action on the nerve ending.

TABLE XXII.

3/10% Quinine and Urea Hydrochloride.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	2.2	2.5	2.9	3.5	4.0	11	Normal
Replaced by 3/10% (a) Solution.							
5 min.	2.2	2.8	15	70	100	16	Toes dis-tended
10 min.	3.7	17	100	100	100	27	Muscle rigid
10 min.	Replaced by Ringer's solution						
20 min.	2.2	4.0	35	100	100	14	
30 min.	2.2	3.7	35	100	100	14	
45 min.	2.5	3.2	13	100	100	13	Muscle re-laxed
70 min.	3.0	4.0	6.0	100	100	12	
100 min.	2.9	2.4	2.3	21	100	12	
140 min.	2.9	2.6	2.8	3.4	9.0	11	
185 min.	2.7	3.0	2.8	3.0	4.5	11	

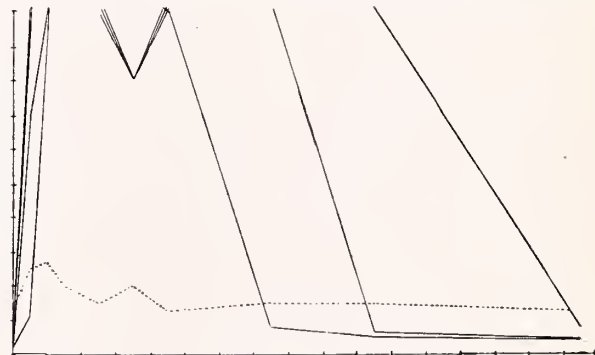
The recovery of the irritability of the nerve was generally slower than appears here and often the nerve appeared to be injured so that it only partially recovered and then regressed eventually losing all irritability.

Quinine monochloride shows the same action as the double salt with urea hydrochloride it is, however, more powerful apparently about 4/3 as active which from the per cent. of quinine would be expected.

TABLE XXIII.

3/10% Quinine Monochloride.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	2.4	2.5	2.6	2.9	3.7	13	Normal
Replaced by 50 cc 3/10% (a) Quinine Monochloride.							
5 min.	11	70	100	100	100	25	Toes dis-tended mus-cle rigid
10 min.	100	100	100	100	100	27	
10 min.	Replaced by Ringer's solution						
15 min.	100	100	100	100	100	20	
25 min.	100	100	100	100	100	15	
35 min.	100	80	80	80	100	20	
45 min.	100	100	100	100	100	13	
75 min.	8.0	100	100	100	100	15	Muscle re-laxing
105 min.	5.0	6.5	100	100	100	15	
165 min.	4.0	4.5	8.0	100	100	13	



XXIII.

The local anesthetics take the following order as regards anesthetic power on the nerve muscle preparation of the frog: Alypin, cocaine, stovaine, tropacocaine, beta eucaine, novocaine, quinine salts, paraphenyl sulphonate of ethyl p. aminobenzoate and phenol.

These, however, act in different ways so that for nerve blocking alypin, stovain, novocaine and quinine salts come first while for nerve endings cocaine, tropococaine, beta eucaine, stovaine, paraphenyl sulphonate of ethyl p. amino-benzoate and phenol are more efficient in the order given.

In stronger solutions the action of these are not necessarily proportional to the concentra-tion. Schmid (8) has shown that the com-bination of two local anesthetics does not give an increased action and from his work it appears also that the anesthetic action is below the mean where two are combined, except beta eucaine with novacaine and cocain with tropacocaine.

The anesthetic action of some of the local anesthetics can be increased by salts with weak (9) acidic radials and by the use of potassium (10) salts.

It was thought that possibly L  wen used merely sodium chloride as an indifferent fluid and that possibly the small amount of potassium chloride in Ringer's solutions would account for the more pronounced action observed with Rana Pipiens and the large swamp frog of New Orleans.

It was found that using 75/100 per cent. (11) sodium chloride in place of Ringer's for diluting, a quite different picture was obtained.

TABLE XXIV.

2/10% Cocaine Hydrochloride.

- A. By diluting with Ringer's solution.
- B. By diluting with 75/100% sodium chloride.

Time Interval	LEFT LEG			RIGHT LEG		
	Minimum Stimulating Current in Units			Minimum Stimulating Current in Units		
	A	B	M	A	B	M
Normal	4.0	3.4	14	3.4	2.8	17
	Placed in A			Placed in B		
5 min.	4.5	4.0	16	3.5	3.3	19
10 min.	4.5	4.5	19	4.0	3.7	27
15 min.	19	25	23	4.5	3.7	25
20 min.	21	35	25	4.5	3.7	25
20 min.	Changed to Ringer's			Changed to 75/100 NaCl.		
30 min.	25	80	32	4.5	5.5	21
40 min.	19	80	25	4.5	4.0	23
50 min.	21	50	27	4.5	3.3	19
50 min.	Changed to Ringer's			Changed to Ringer's		
60 min.	8.0	60	27	4.0	3.3	17
65 min.				4.0	11	30
70 min.	6.5	60	25	4.5	19	30
75 min.				Changed to Solution A.		
85 min.	4.5	23	23	6.5	25	30
85 min.				Changed to Ringer's		
95 min.	4.5	13	21	11	45	30
105 min.	4.5	6.5	17	4.5	80	30
125 min.	4.5	4.0	15	4.5	7.0	25
155 min.	4.5	3.7	16	4.5	3.3	23

However, as no salts were used but a 5 per cent. water solution in the earlier experiments, endeavored to duplicate L  wen's results by using a hypertonic solution, diluting a 10 per cent. cocaine hydrochloride with an equal volume of 75/100 per cent. sodium chloride, but the same extinction quickly resulted.

A 3   3 per cent. Cocaine solution, by diluting a 10 per cent. water solution with an equal volume of water and the same volume of 75/100 per cent. sodium chloride, shows the following effect.

TABLE XXV.

3   3% Cocaine Hydrochloride.

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	3.7	5.5	4.0	3.4	3.5	23	Normal
	Placed in 3 ��3% Cocaine Hydrochloride Solution.						
5 min.	100	100	100	100	100	70	
5 min.	Replaced by 75/100% Sodium Chloride.						
10 min.	Nothing at 100						50
20 min.	Nothing at 100						45
30 min.	Nothing at 100						45
40 min.	Nothing at 100						27
50 min.	Nothing at 100						30
80 min.	Nothing at 100						25

It thus appears that the apparently augmentative effect of potassium salts on the anesthetic by no means accounts for the discrepancy.

A 2/10 per cent. potassium sulphate solution is seen to be prompt and marked in its action.

TABLE XXVI.

2/10% Potassium sulphate (by diluting a 1.3% water solution with 75/100% sodium chloride).

Time Interval	Minimum Stimulating Current in Units						Remarks
	A	B	C	D	E	M	
	2.1	2.7	3.3	3.3	3.1	15	Normal
	Placed in above solution.						
5 min.	2.1	2.6	3.3	3.2	3.3	16	
15 min.	12	40	45	50	60	19	
	Replaced by 75/100% Sodium Chloride.						
25 min.	2.5	2.7	2.7	3.8	6.5	13	
35 min.	2.4	3.1	3.7	3.7	4.0	12	

It thus seems that at least a part of the augmentative effect of potassium salts is the additive action of the anesthetic potassium sulphate rather than the multiplication (10) of the action of cocaine, novocaine, etc., which has been assumed.

It is seen that the action of potassium salts is upon the nerve conductivity. A concentration of potassium salts is nature's own way of deadening pain (12), for when a nerve is injured there is a concentration of potassium salts in the nerve trunk near the injury so that stimulation must be very intense to pass through the area of the nerve in which there is found an increase of potassium salts.

The subdural injection of 2/10 cc. of a solution (1) containing   2 per cent. potassium sulphate and 67/100 per cent. sodium chloride and of a solution (2) containing 9/10 per cent. sodium chloride into two persons, A.W.L. and O.E.C., showed with the first solution a very appreciable numbness for some time while sodium chloride alone gave just after the injection a doubtful effect. However, when a 1/100 per cent. cocaine solution, made by diluting a 2 per cent. cocaine (Codrenin A) with the first solution, was injected a very distinct anesthesia was produced persisting over fifteen minutes.

There is thus an apparent enhancing action of potassium salts on cocaine over the simple additive action although in this case the action must be largely on nerve endings while potassium acts primarily on the nerve trunks.

From clinical data which will appear in a later communication, it appears that very dilute cocaine solutions with potassium sulphate are perfectly reliable. A 1/20 per cent. cocaine hydrochloride and 1.2 per cent. potassium sulphate solution with which we have more data seems to be as efficient as a 1 per cent. cocaine hydrochloride solution. While in the majority of cases there is no need of using as strong a solution as 1 per cent., it also appears that considerably below 1/20 per cent. cocaine hydrochloride when combined with potassium sulphate is perfectly satisfactory.

To attain the dose of one-half grain of cocaine hydrochloride set by the U.S.P., it would

be necessary to inject 80 cc., nearly three ounces, of this 1/20 per cent. solution.

The order of anesthetic power as determined on the nerve muscle preparation of the frog appears to be: alypin, cocaine, stovaine, tropacocaine, beta eucaine, novocaine, quinine salts, anesthesia, phenol.

CONCLUSION.

In drawing conclusions from experiments upon the motor nerves and nerve endings of the frog, it is well to bear in mind that the function of a local anesthetic is to deaden sensory nerve endings and block impulses along sensory nerves. Dixon (13) has shown that cocaine blocks impulses along sensory nerves better than along motor, so that the clinical results with sensory nerves may well show greater divergence of action than is generally assumed (?).

In general these results show that:

1. Cocaine is efficient in weaker solution than generally employed and for prompt action coupled with the same relative safety has no rival.

2. Novocaine while less toxic is also weaker in anesthetic power than cocaine, alypin, stovaine, tropacocaine or beta eucaine.

3. Beta eucaine while more toxic and more irritating than novocaine, is in the weak solutions necessary for local anesthesia, safer, than novocaine and more prompt in its action.

4. Quinine, while slightly weaker than novocaine, shows a longer anesthesia, so that for nerve blocking (14) and post surgical anesthesia, it is to be preferred.

5. Potassium salts are themselves local anesthetics but augment the action of other anesthetics to a greater extent than the mere additive increase.

REFERENCE.

1. Bier, *Deut. Z. f. Chirurgie* XCV, Nos. 1-5, considers tropacocaine the safest and cocaine the most dangerous for spinal anesthesia, and employs tropacocaine with adrenalin (cf. ref. 2).

J. Oebler. *Beit. z. klin. Chirurgie* LV, No. 1 in Kümmel's service also considers tropacocaine the least dangerous spinal anesthetic.

Stovaine was at first highly extolled and is still used extensively in spinal anesthesia. W. W. Babcock, *J.A.M.A.* 61, p. 1358.

Novocaine is at present in favor, H. Brauns, *Deut. med. Woch.* 31, p. 1667, first demonstrating its action. Quinine salts are, however, advancing to popularity. cf. A. E. Hertzler. Operations with local anesthesia; also series of articles in *Am. Jr. Surgery*, 1910 and 1911.

2. Stovaine partly destroys and tropacocaine almost completely destroys the vasoconstrictor power of adrenalin. Novocaine, however, increases the

vasoconstrictor power of adrenalin. F. R. Smyth, *Proc. Roy. Soc. of Med.*, Vol. 4, p. 56.

Novocaine appears most suited to cataphoresis. M. Lungren, A. Schéle and B. Svedin. *Zentr. Biochem. Biophys.* 15, p. 119.

Influence of cocaine on accommodation. I. Horowitz, *Inaug. Diss.* 1912, *Zentr. Biochem. Biophys.* 15, p. 94, also 14, p. 316.

Upon intraocular tension cocaine exerts sometimes increase and sometimes a decrease. A. Fourrière, *Ann. oculist* 15, p. 95.

3. Impens. *Pflüger's Arch.* 110, p. 21.

A. Låwen. *Arch. Path. u. Pharm.* 56, p. 138. *Beit. z. klin. Chirurgie*, 50 p. 621.

H. Braun. *Deut. Z. f. Chirurgie*, 1911, p. 321. Lokalanesthetie, 3rd, 1913.

Le Brocq. *B. it. Med. Jr.* 1909, 1 p. 783.

W. L. Symes and V. H. Veley, *Proc. Roy. Soc. B.*, Vol. 83, p. 421.

4. From the fact that Brewster used 100 grains intravenously in six hours and concludes it absolutely safe, *Jr. A.M.A.*, 53, p. 1395, L. J. Hirschman, *Proctologist* 47, p. 122, concludes "It is absolutely nontoxic."

5. J. Morganroth and S. Ginsberg. *Berliner klin. Woch.*, 49, p. 2183. *Ibid*, 50 p. 343, using as a standard the time of suppression of sensation to mechanical stimulation obtained, however, very comparable data.

6. F. M. Fernandez, *Therap. Gazette* 26, p. 10, strongly advocates Aypin in ophthalmic work.

7. A. Låwen, *Münch. med. Woch.* 57, p. 2044.

8. A. Schmid, *Zeit. Exp. Path. u. Therap.* 14, p. 527, cf. also L. Horn, *ibid*, 12, p. 529.

9. O. Gros., *Münch. med. Woch.*, 57, p. 2042.

A. P. Mathews, *Am. J. Physiol.*, 11, p. 454.

10. H. Braun, *Zeit. f. Chirurgie*, 40, p. 1513.

A. Hoffman, *ibid*, No. 35

A. Hoffman, and M. Kochmann, *Deut. med. Woch.* 38, p. 2264.

11. Commercial sodium chloride, the C. P. is quite toxic deadening the muscle and nerve.

12. M. L. Menton, *Am. Jr. Physiol.*, 31, p. 85.

Mac Donald, *Proc. Royal Soc. B.*, 76, p. 332.

13. W. E. Dixon, *Jr. Physiol.*, 32, p. 87.

14. M. L. Harris, *Jr. Am. Med. Ass.*, 41 p. 1042.

15. E. G. Martin, *Am. Jr. Physiol.*

Vol. 22 p. 61 to 74 and 116 to 132.

Vol. 24 p. 269 to 285.

Vol. 26 p. 181 to 190.

Vol. 27 p. 226 to 239.

Vol. 28 p. 49 to 56.

(a.) In all experiments where the anesthetic is used in strength below 5 per cent., it is made by diluting the 5 per cent. water solution with Ringer's solution, and when insoluble to the extent of 5 per cent. the substance was placed in a container and dissolved in Ringer's solution to which enough water was added to correspond to a 5 per cent. water solution of the substance used.

(c.) The divisions of the ordinate are at ten unit intervals. The divisions of the abscissa are at ten minute intervals.

Shortage of Drugs.—In view of possible drug shortage, physicians should bear in mind that many proprietary foreign preparations are made and sold in the United States under their descriptive names, thus dionin as ethyl morphin hydrochlorid, urotropin as hexamethylenamin and diuretin as theobromin sodium salicylate (*Jour. A.M.A.*, Aug. 22, 1914, p. 692).

SKIN GRAFTING.*

MAURICE DUANE BIRD, M.D.

MARINETTE, WISCONSIN.

Skin grafting is one of the niceties of our art that has developed quite rapidly during the past few years. Take an old ulcer or burn or indeed any wound where the epithelium has been destroyed and repair is a decided problem.

Generally the wound becomes infected, granulations become profuse, but the wound decreases in size very slowly, of course the healing is by cicatricial tissue, and contractions and ugly scars are to be expected.

I do not mean to imply that transplanting healthy skin is a cure-all, and that the resulting wound is perfect, but the patient's life or limb may be spared and much time saved in dressings and I believe some wounds are covered that really never would heal otherwise.

TECHNIC.

The wound should be through sloughing and filled in with granulations, even with the surrounding surface before an attempt should be made at repairing. The day before the grafting is to take place the wound should be well curetted; I mean the infective granulations removed, giving us a firm base of sound tissue, then the wound dressed with wet boric dressings. I think the preliminary operation of much benefit and very important, for in this way the surface is clean and the hemorrhage has been controlled, which is second only to infection in destroying new epithelium.

DRESSINGS.

The great number of dressings recommended for skin grafting tends to prove that our results, either immediate or remote are not entirely satisfactory and leave much to be desired in comfort to the patient, in celerity of healing and in the viability and pliability of the scar.

An ideal dressing for Thiersch skin grafts would embrace:

Secure splinting of the graft to its new bed.
Asepsis.

Elimination of surface exudation or its rapid removal.

Stimulation of epithelial proliferation comfort.

The more popular forms of dressings satisfy some of these qualifications, but each has objectionable features which nullify to a great extent their disadvantages.

Most likely rubber tissue has been the favorite with most of us, and it proves effective a

good many times. Success is also due in part to the clever cutting of the grafts and in care in placing them upon the denuded surface. The objection to rubber tissue is apparent, even with drainage holes or slits provided, the excretions are dammed back so that the newly implanted graft is floated away from the surface or else becomes macerated leaving few if any living cells.

Dry gauze is objectionable, for the graft tends to cling to its meshes rather than to the underlying surface, and is apt to be removed with the first dressing.

To overcome this defect the gauze has been applied damp and kept in this condition with salt solution; this requires a great deal of attention, and if perchance the under surface becomes dry failure results. Moreover, too much moisture causes maceration.

Granting the open air method has advantages, the objectionable features are many; primarily, the grafts are apt to become misplaced during the restlessness of the patient while recovering from the anesthetic. Later the exudates become dried, covering the surface with an unsightly mass, beneath which increasing exudates are endeavoring to find avenues of escape, a mass most difficult to remove, of offensive odor, and far from being comfortable to the patient.

Having experienced these disadvantages, I shall briefly review a method of dressing and procuring grafts worked out by F. H. Coerr and described in the *American Journal of Surgery*, with some modifications.

As it is essential, or at least most desirable that the body forces should be at their best, suitable hygienic measures should be employed to bring the physical condition up to par. Just before the grafts are applied to the wound the dressings are removed and the surface covered with towels wrung out of hot salt solution, and uncovered, only as grafts are to be applied.

The tendency is to cut the grafts too thick; for good results they should be very thin, nearly transparent, when placed upon their new bed, all blood clots and air bubbles are then expressed by gauze wrung out of hot salt solution. Strips of gauze are then spread with 2 per cent. carbolated vaseline and applied over the grafts. A cotton covering and bandage complete the operation.

The first dressing should be done on the fifth day, and every third or fourth day thereafter.

In ten days one is able to peel from each graft a thin film of dead cuticle, leaving a firm pink healthy graft in position, which makes a pliable wound covering. I have tried various forms of procuring epithelium and of course

*Read at the Annual Meeting of the Upper Peninsula Medical Society held in Houghton, Aug. 11-12, 1914.

that taken from the same subject is by far the best.

Occasionally, however, the patient may be too weak to stand the operation. However, I generally attempt to take it from his own person if possible. I certainly disapprove of removing skin from school children for this purpose. In a recent patient of mine that required considerable new tissue as a result of an extensive burn, we resorted to the skin from an amputated leg, also from a cadaver—a county charge. This patient I knew was about to pass away. I had the burned patient ready for grafting, and as soon as the former died, and while still warm, I removed extensive grafts which were placed upon the wound, and grew as well as any.

I have also used parts of the epithelium of the placenta, although I am free to confess that at present I am not satisfied with results. However, I hope in the near future to be able to report progress along this line. Certainly this would be a Godsend if we could develop a technic that would make this a satisfactory epithelial covering.

THE ASSOCIATION OF CHOLELITHIASIS AND PREGNANCY.*

R. A. BURKE, M.D.

DIORITE, MICH.

That cholecystitis and that cholelithiasis may complicate pregnancy and puerperium is a recognized fact, and, considering the frequency in which gall-stones are found in women, it is a peculiar instance to find so few cases reported in the literature. The majority of text books have little to say about the clinical relations of gall-stones and pregnancy. DeLee, in his recently published *Principle and Practice of Obstetrics*, has the following to say: "It seems that pregnancy is a factor in the development of gall-stones, and it is not rare that *gravidæ* have attacks of biliary colic. These seldom occur before the fifth month, but jaundice, with chills and fever, is more common than in the non-pregnant state. Labor may cause pain in the full gall-bladder, and the latter may be easily palpated during the third stage. In the puerperium, attacks of gall-stones are infrequent.

"I have observed two cases, in one of which the symptoms were very stormy, with intense pain collapse and vomiting, so that suspicion of the rupture of an abdominal viscus could well be entertained. Operation should be postponed, if possible, until after delivery, at least as late in pregnancy as possible, because premature labor may occur and the child be lost. Chole-

cystitis may complicate pregnancy, labor and the puerperium. The symptoms are quite stormy and jaundice common. It is better to wait until after delivery for the operation, if possible, but in the presence of a strict indication, for example, a large empyema, one may have to drain the sac before labor. In one case the author had to make a differential diagnosis between puerperal infection and pus in the gall-bladder. Absence of local evidence of puerperal disease, signs of local peritonitis in the upper abdomen, with appropriate history usually indicate the exact source of the trouble."

The most recent complete consideration of the subject of gall-stones and pregnancy was published July 1910 by Peterson. He reported a fatal case of obstructive cholelithiasis in a multipara six months pregnant in whom death was due to post-operative cholemic hemorrhage. He further collected from the literature twenty-four other similar cases of gall-stones complicating pregnancy, and ten cases of this complication during the puerperium.

CASE REPORTS.

In view of the importance of this subject and the interest it has to each of us, I am able to report the following cases occurring in my practice:

CASE 1. Mrs. A., age thirty, nationality Finnish. The case was seen by me in consultation with Drs. T. A. Felch and G. G. Barnette on Dec. 17th, 1909. Patient had always enjoyed good health, was a hard working woman, menstruation regular. She had been successfully delivered of two healthy children, ages two and four respectively. On Dec. 2nd, 1909, Dr. G. G. Barnette had delivered her at full term of a healthy child. At the time of delivery, she was markedly jaundiced and after delivery there was considerable hemorrhage. On the 10th day after delivery colic appeared and was so severe as to require morphine hypodermatically. The jaundice became marked and continued to increase. The pain also increased and there was marked rigidity over the right side in the epigastric region. It was thought best to wait and treat the case expectantly, but she rapidly grew worse, the pain, jaundice and the hemorrhage continued to increase, and it became evident that an operation was the only means to save the patient's life.

Operation.—The gall-bladder was exposed by a vertical incision. A distended gall-bladder was found adherent to omentum and liver. It contained two hundred thirty-eight stones, some of considerable size. The pulse was rapid and weak, the dressings were soaked with blood, salines; strychnia, etc., were freely given, but to no avail. She died on the third day following the operation.

CASE 2. Mrs. S., age 22, nationality French; married at the age of 17. Has four children living, had four miscarriages, menstruation always regular, twenty-eight day type. She is now three months pregnant. Case was referred by Dr. N. J. Robins of Negaunee.

Present Trouble.—Patient was suddenly taken with severe pain in the abdomen on the right side, so severe as to require morphine; vomiting was followed by jaundice, clay-colored stools. A diagnosis

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of gall-stones was made and an immediate operation performed.

Operation—Gall-bladder was exposed by a vertical incision. There were no adhesions, and contained thirty stones. Patient made an uneventful recovery. Six months later I was called and delivered her of a full term child.

CASE 3. Age 30, nationality Finnish. A strong, robust, hard working woman. Six children living. Labor had always been normal with exception of the last, when she had severe chills, cramps and as she says "caught cold." Having missed two periods she was suddenly taken with severe pain in the upper abdomen, vomiting and required morphine. Jaundice, which continued to increase. A diagnosis of gall-stones complicating pregnancy was made, and operation advised. The patient was removed to St. Mary's Hospital at Marquette and on opening the abdomen a gall-bladder which contained 236 stones was found. The patient made an uneventful recovery and seven months later I was called and delivered her of a full term child without any complication.

CASE 4. Mrs. H., age 18. Menstruation regular. Family history negative. For the past four years she has suffered from "indigestion." She would get "sick headaches" and every four to six months she would have attacks of "stomach troubles." Six months ago she was married, the first four of which she menstruated regularly. The last two periods she missed.

Present Trouble.—Suddenly taken with severe pain in the abdomen, nausea vomiting followed by jaundice. Rigidity of the upper quadrant on the right side. Pain continued to increase and required morphine hypodermatically. Jaundice became more intense, and hence a diagnosis of gall-stones and pregnancy was made and immediate operation advised.

At the operation four stones were removed. The patient made an uneventful recovery and six months later I was called and delivered her of a full term child.

CONCLUSION.

1. Gall-stones are most frequent in women and the age ranges from 18 to 32.
2. From the above cases it is evident that child bearing has a direct effect on gall-stones.
3. In the above series of cases, the onset of the attack was from the second to the fourth month.
4. Chills, elevation of temperature and jaundice of a severe type are frequent.
5. In three cases the operation was performed without disturbing pregnancy. The mortality was nil, whereas the case that went the full term with attacks of colic, chills, fever, followed by jaundice, and the operation was performed after delivery had very little chance of recovery.
6. There is no more danger of an operation for gall-stones to interrupt pregnancy than for any other abdominal operation during gestation. The diagnosis of cholelithiasis during pregnancy and the puerperium will not be difficult if the possibility of the complication is born in mind. Much reliance can be placed upon the jaundice which is more prevalent in the pregnant woman than in the non-pregnant woman with gall-stones.

PROPAGANDA FOR REFORM.

Administration of Fruit Acids.—The administration of the salts of the ordinary fruit acids is useful whenever it is desired to increase the alkalinity of the blood and diminish the acidity of the urine. Important investigations indicate, however, that it is scarcely feasible to produce any very marked effect on the alkalinity of the blood in this manner. If the physician believes that the alkalinity of the blood is an important factor in the recovery from gout and rheumatism, the administration of the salts of fruit acids is appropriate. Citrates should be preferred to tartrates, for the latter are imperfectly converted to carbonates and, when given in large quantities, may cause irritation of the kidneys (*Jour. A.M.A.*, Aug. 1, 1914, p. 420).

Hectine.—Hectine, referred to in newspapers as a treatment for hay-fever, is a French proprietary, stated to have a composition similar to that of atoxyl. If its composition is in accordance with the claims its action probably is no better than that of atoxyl. Arsenic is used in the treatment of hay-fever with success in some cases (*Jour. A.M.A.*, Aug. 8, 1914, p. 502).

Veracolate, Marcy and Co.—Veracolate is a proprietary said to consist of the salts of the bile acids, sodium glycocholate and sodium taurocholate, with cascara and phenolphthalein. While bile salts are said to increase the secretion of bile, it is doubtful

whether this increase in the secretion of bile is of value in the treatment of gall-bladder affections. There is no occasion for the use of bile salts combined with fixed quantities of cathartics, which should be added only when they are needed. The advertising claims for Veracolate show a tendency to extravagant statements (*Jour. A.M.A.*, Aug. 1, 1914, p. 420).

Toxicity of Camphor.—A case is reported in which an eighteen months old child was given, after a meal, a teaspoonful of camphorated oil (linimentum camphorae) by mistake. While this dose must have contained about 15 grains of camphor, no untoward symptoms were observed (*Jour. A.M.A.*, Aug. 15, 1914, p. 579).

The Radio-activity of Saratoga Springs Water.—An estimation of the radio-activity of Saratoga Springs Water, made by the U. S. Bureau of Mines, shows that the activity is due in the main to radium emanation, which is therefore readily lost, and not to dissolved radium salts. The total activity of the waters is rather low, that of the Crystal Rock springs, though not exceptional, is considerably above the average. The activity of different springs varies widely, some being more than twenty times as active as others. A similar variability is known to exist at Hot Springs, Ark. but only the vaguest information has been made public by our government (*Jour. A.M.A.*, Aug. 29, 1914, p. 788 and 795).

Forty-Ninth Annual Meeting

of the

Michigan State Medical Society

Held at Lansing, September, 9, 10, 11, 1914

Official Proceedings and Minutes

The 49th Annual Meeting of the Michigan State Medical Society that was held in Lansing on September 9, 10 and 11, 1914, as the guests of the Ingham County Medical Society, is hereby placed on official record and its enactments and activities are thus imparted for the studious perusal of our members and all others who may be interested in the work of our organization.

The total registration was 472 members, 19 guests and visitors and approximately 65 ladies, making a total of attendance at this session of 556. In comparison with the Flint meeting there were 365 members registered at Flint, thus making a gain of 107 for Lansing with its registration of 472.

COUNCIL PROCEEDINGS.

FIRST SESSION.

The Council of the Michigan State Medical Society met in its regular Annual Session in the parlors of the Hotel Downey, Lansing, September 9th, 1914 at 8 p. m.

Vice-Chairman Bulson called the Councilors to order and upon roll call the following Councilors responded: Biddle, Bulson, Rockwell, DuBois, Hume, Kay, Seeley, Baker, Buckland and Witter, and Treasurer Welsh, Secretary F. C. Warnshuis and President Guy L. Kiefer.

The minutes of the last meeting were read by the Secretary, and upon motion were accepted and adopted.

The Secretary read a communication from Dr. Craig of the A.M.A. in which the Secretary of the American Medical Association requested an expression of the Society of Michigan relative to the amendment to the Constitution and By-Laws of the A.M.A. whereby the Judicial Council of the American Medical Association shall only exercise an appellate power over controversies or questions of legislation among the members of the component county societies, councilors and state organizations.

It was moved by Councilor Biddle that the House of Delegates of the Michigan State Medical Society be requested to approve of this amendment.

Supported by Councilor Hume and carried.

The Secretary also read a request from the A.M.A. that the State organization exercise its influence to secure the proper enactment of necessary laws whereby there will be secured proper labeling of all cleansing preparations of a caustic character sold by grocers and other merchants.

On motion of Councilor Kay this was referred to the House of Delegates.

The Secretary then read the following communication from Councilor Kimball:

"I wish to tender this, my resignation as Councilor of the 3rd District of the Michigan State Medical Society, to take immediate effect.

"The position came to me unsought. I have tried to do the work but I cannot find the way to do my District justice. I feel that the Third District needs someone who can give it much more attention than I, and for that reason I am asking you to name my successor.

(Signed) W. S. Kimball."

Dr. Biddle moved that the Council recommend to the House of Delegates that the resignation of Dr. Kimball be accepted and that they instruct the Committee on Nominations to nominate a new councilor for the Third District to fill the unexpired term of Dr. Kimball.

Supported by Dr. Rockwell and carried.

The Council voted to recommend to the House of Delegates the following members as honorary members:

Dr. Geo. Ranney, Lansing.
Dr. J. F. Campbell, Lansing.
Dr. O. E. Herrick, Grand Rapids.
Dr. W. F. Breakey, Ann Arbor.
Dr. Carl Bonning, Detroit.

Moved by Councilor Bulson that the House of Delegates be requested to make provision for proper observation of the 50th Anniversary of the Michigan State Medical Society.

Carried.

The Report of the Council was read by Vice-Chairman Bulson.

Councilor Biddle moved the adoption of the Council's report.

Supported and carried.

Moved by Councilor Biddle, supported by Councilor Rockwell, that the Council refer to the Committee on Finance the advisability of loaning funds of the Society to the component county societies at a rate of interest of 4½ per cent.

Carried.

Moved by Councilor Biddle, supported by Councilor Buckland, that the Secretary be instructed to withdraw the privilege of printing professional announcements in the advertising forms of *The Journal*.

Carried.

There being no further business the Council adjourned.

A. E. Bulson, Vice-Chairman.
F. C. Warnshuis, Secretary.

SECOND SESSION.

No business having been referred to the Council by the House of Delegates the Second Session of the Council was not held.

THIRD SESSION.

The Third Session of the Council was held in the Capitol Building, Lansing, on Sept 11th, 1914 at 12:30 p. m., with Vice-Chairman Bulson presiding and the following Councilors present: Bulson, Rockwell, Hume, Seeley, Witter. Treasurer D. E. Welsh and Secretary F. C. Warnshuis were also present, as well as the State President, Dr. Reuben Peterson.

Councilor Hume moved that the plans for the special celebration in commemoration of the 50th Anniversary of the State Society be deferred until the January meeting of the Council, and suggested that the Councilor of the Kent County District make a report recommending a tentative program. Carried.

Councilor Hume, supported by Councilor Rockwell, moved that the January meeting of the Council be held in Ann Arbor in accord with the invitation of President Peterson.

Carried.

Moved by Dr. Kay, supported by Councilor Seeley, that Dr. Dodge be elected as Chairman of the Council for the coming year.

Carried.

Moved by Councilor Seeley, supported by Councilor Rockwell, that Dr. Bulson be elected as Vice-Chairman of the Council.

Carried.

There being no further business the Council adjourned to meet in Annual Session in Ann Arbor in January, 1915 at the call of the Chairman.

A. E. Bulson, Vice-Chairman.
F. C. Warnshuis, Secretary.

HOUSE OF DELEGATES.

FIRST SESSION.

The House of Delegates of the 49th Annual Meeting of the Michigan State Medical Society convened in regular session in the Capitol Building, Lansing, Sept. 10, 1914 at 8 a. m., with President Kiefer presiding and 53 delegates responding to roll call.

The report of the Committee on Credentials was rendered by Dr. Hirschman. There being no objections the report was adopted as read and the delegates responding to roll call were seated.

The minutes of the last meeting were adopted as they were published in *The Journal*.

The report of the Council was read by the Secretary and referred to the Business Committee, and was as follows:

ANNUAL REPORT OF THE COUNCIL.

The Council respectfully submits the following report:

MEMBERSHIP.

The total paid membership for 1914 is 2304. Unpaid dues from 181 members, which, if collected would make our membership for the current year 2,495, the largest in the history of the organization.

During the year 375 new members have been

admitted to the state body, which fact in itself is very encouraging to the workers in the society, but it is a matter of deep concern that dues from 181 members should thus far for 1914 remain unpaid. While we have made a substantial gain in membership for the year, the figures in this report show that no small number has been lost to the society.

Here is a most prolific field for work for the officers and members of the various societies to put forth every effort to secure these delinquent members' dues, and persuade them to maintain their membership in the state society.

TREASURER'S REPORT.

Assets	Liabilities.
Cert. of Deposit \$2,025.00	Due Defense
Bond a/c 2,000.00	Fund\$ 72.50
Sav. a/c 2,325.05	Pres. Worth
G. R. Sav. Bank 767.47	1/1/14 \$6,751.93
Adv. a/c Rec... 579.71	Gain to
Reprint a/c Rec. 165.75	8/31/14 1,038.55
<u>\$7,862.98</u>	<u>\$7,790.48</u>
	<u>\$7,862.98</u>

LOSSES AND GAINS FOR EIGHT MONTHS ENDED
AUGUST 31, 1914.

Losses	Gains
Journal Exp....\$4,146.02	Member. dues \$2,169.50
Society Exp.... 945.57	Journal Sales .. 2,168.50
Secretary Exp... 67.27	Adv. Sales 1,969.25
Council Exp. 141.27	Reprint Sales... 921.90
Reprint Exp....1,132.82	Outside Subs... 21.00
<u>\$6,432.95</u>	Interest Recd... 221.35
	<u>\$7,471.50</u>
	<u>6,432.95</u>
	Gain \$1,038.55

THE JOURNAL.

It gives me great pleasure to speak a word at this time in recognition of the work of the publication committee and the editor of *The Journal of the Michigan State Medical Society*. At the Atlantic City meeting of the American Medical Association our *State Journal* was accorded the honor of being the best of all state medical journals.

It is naturally a matter of great pride that the publication has grown so steadily in value, and that the society has such a representative publication. It devolves upon the individual members of the State Society to form their own verdict as to its value and worth to the individual doctor.

From a letter bearing date of August 24, 1914 from the secretary-editor, we quote as follows:

"As *The Journal* is now being published it is costing us considerably more than during previous years, and present indications show that the year will be closed without any profit and possibly a loss of a couple hundred dollars. The reason for this loss is that during the last six months the cost of paper has almost doubled to what we previously paid for it. Labor prices and ink have also gone up, and *The Journal* has been compelled to stand this expense. Further, *The Journal* has also been made to suffer by reason of the European war by the discontinuance of several advertising contracts from our large drug houses, and therefore we are deprived of this revenue. A strenuous effort is being made to recoup on this loss by securing local advertisements, but this is difficult matter. It would not be difficult if our members would make the effort

to patronize our advertisers a little more exclusively than they are accustomed to do, for then we would be able to demonstrate to the Michigan business firms that advertising in our *State Journal* is a valuable proposition bound to bring them results upon the money they thus invest with us."

In order that the present high standard of *The Journal* may be maintained, and that the future may show continued growth, it behooves each member of this delegate body to put forth an earnest effort to impress upon the membership of the society the importance and necessity of *patronizing our advertisers*.

It has been customary to note in the Council's report the list of members who have passed away during the year.

NECROLOGY.

The following is the list of members who have died during the year; and whose memory we perpetuate in these our official records:

Cogshall Bela W., Flint, died May, 1914.
 Cornell, Daniel B., Saginaw, died April 2, 1914.
 Cornish, Geo. W., Lawton, died April, 1914.
 Crosby, J. H., Plainwell, died December, 1913.
 Crum, Jos. D., Owosso, died October 31, 1913.
 Demming, D. P., Cass City, died December 27, 1913.
 Drake, Geo. H., Pontiac, died December, 1913.
 Eggleston, John P., Imlay City, died Feb. 19, 1914.
 Fabian, Jacob J., Grand Rapids, died July, 28, 1914.
 Kremers, Henry, Holland, died July 15, 1914.
 Lamb, Dryden H., Owosso, died August 4, 1914.
 McDonald, Thos. E., Holly, died May, 1914.
 McFayden, D., Detroit, died April 22, 1914.
 MacGregor, Alex. B., Cheboygan, died Jul. 15, 1914.
 McQuisten, W. D., Detroit, died April 6, 1914.
 Nafe, Geo. W., Fremont, died Feb. 24, 1914.
 Nolte, Harry S., Reed City, died November, 1913.
 Nottingham, Bret, Lansing, died May 26, 1914.
 Obez, H. L., Detroit, died December, 1913.
 Sellards, Geo. B., Deerfield, died February, 1914.
 Sheffield, Jos., Detroit, died June 8, 1914.
 Smith, E. B., Detroit, died August 11, 1914.
 Spademan, Chas. F., Detroit, died February, 1914.
 Statler, Herbert O., Kalamazoo, April, 1914.
 Walker, Colin, Barryton, died January, 1914.
 Weaver, Frank A., Charlotte, died January, 1914.

PUBLIC EDUCATION.

Your vice-chairman has experienced a feeling of deep gratification, as well as some surprise at the tremendous amount of work that is being done by the national body for the prevention of disease and the protection of mankind, but, as a rule, the rank and file of members do not fully realize the scope of this work.

The Council on Health and Public Instruction was only organized a few years ago, but it has accomplished wonderful results in that brief period of time. It has laid the foundation for the development of a wonderful work. When they first started on this great problem of educating the people, their idea was to get out various articles for publication in the papers of this country, and it now looks as though the lay press and the medical profession are getting together rapidly, for we find that every week 5,000 newspapers of this country receive articles, properly prepared and in language suitable for newspaper use, along the lines of the prevention of disease. So, it will be readily seen what a wonderful amount of good is being accomplished by the disseminating of such knowledge.

When we realize that 500,000 people die every year from infectious disease, we can see what it means to instruct the people along the lines of pre-

vention. The Council has sent out or established a great lecture bureau, with men who are competent to teach the methods of prevention. It has also suggested proper laws regarding vital statistics, proper laws for the examination of school children, proper laws for all sanitary and hygienic conditions, and all this being carried on through the American Medical Association. This would not be possible except for the wonderful organization behind it.

When we stop to realize that the county society is the unit and that these make up the state body, we realize that the organization has been founded on the correct principles and that the people are reaping the benefit, through the A.M.A. and that great educator of the people, the lay press. Great credit is due some of the newspapers of the country, notably, the *Chicago Tribune*, *The St. Louis Star* and *The Item* of New Orleans which fought hard, month after month, the battle against quacks and patent medicines, and the medical profession of the country owes them a debt of gratitude for being bold and brave enough to throw aside the many thousands of dollars received every year for advertising the various nostrums and quacks of the country, and who have enough of the good of mankind in their hearts to stand by and say; "We are ready to join the medical profession in a movement of this kind." It rests upon the individual doctor, upon you and me, to get the co-operation of the whole people if we would accomplish the greatest good to the greatest number.

HONORARY MEMBERS.

The Council further recommends that the House of Delegates elect the following members as honorary members of the State Society:

Dr. Geo. Ranney, Lansing.
 Dr. J. F. Campbell, Lansing.
 Dr. O. E. Herrick, Grand Rapids.
 Dr. Carl Bonning, Detroit.
 Dr. W. F. Breakey, Ann Arbor.

It further calls to the attention of the House of Delegates that our next annual meeting will be the 50th anniversary of the organization of our Society, and that it will be most fitting that the House of Delegates make suitable provision for the commemoration of this event.

The Council recommends to the House of Delegates that the resignation of Councilor Kimball be accepted and that they instruct the Committee on Nominations to nominate a new councilor for the 3rd District to fill the unexpired term of Councilor Kimball.

The following amendment is submitted to Chapter II, Section 1 of the By-Laws by adding the following: "The dues of members joining the State Society after six months have elapsed shall be one-half of the annual dues. Those joining after nine months shall be one-quarter of the annual dues."

The Secretary of the A.M.A. requests an expression of the Society of Michigan relative to the amendment to the Constitution and By-Laws of the A.M.A., whereby the Judicial Council of the A.M.A. shall only exercise an appellate power over controversies or questions of legislation among the component county societies, councilors and state organizations.

The Council also refers to the House of Delegates the request of the A.M.A. that the state organization exercise its influence to secure the enactment of necessary laws whereby there will be secured proper labeling of all cleansing preparations of caustic character sold by grocers and other merchants.

All of which is respectfully submitted by the Council.

(Signed) A. E. Bulson, Vice-Chairman.

COMMITTEE REPORTS

SPECIAL COMMITTEE TO STUDY THE RELATIONS AND QUALIFICATIONS OF SPECIALISTS.

The Committee of the Michigan State Medical Society to Study the Relations and Qualification of Specialists begs to report as follows:

Owing to the complexity of the subject we regret to say that things move slowly and that a report cannot be made at this year's meeting. There exists a general upward movement in medical matters in all quarters. Ideas are gradually being sifted, condensed and accepted, ripening into convictions, and appear slowly to work toward measures which, in the course of time, will lay a sure foundation for progress, concomitant with modern ideas. Any report, at present, would be unwise and arbitrary and might be an obstacle, rather than a help, considering the various allied movements all over the country, by various associations. After the sky has cleared up a little, something more definite may be stated and specified recommendations may be made which may then form a safe basis for further advances. Inasmuch as the Michigan State Medical Society is the pioneer in the movement, a committee to study the relations and qualifications of specialists should be continued.

Signed,

Emil Amberg, Chairman.
Wm. G. Bird.
F. W. Robbins.

COMMITTEE TO ENCOURAGE THE SYSTEMATIC EXAMINATION OF THE EYES AND EARS OF SCHOOL CHILDREN THROUGHOUT THE STATE.

To the President and Members of the House of Delegates of the Michigan State Medical Society:

Gentlemen: Your Committee appointed to encourage the examination of eyes and ears of school children throughout the state has the honor to make the following report:

There has been a decided increase in the number of schools examined. In about one-half of the counties in the states many of the schools are being examined in a satisfactory manner; in about one-fifth of the remaining counties some effort has been made to have the work done, but the results are unsatisfactory. In the remaining counties little or nothing has been done.

During the spring a circular letter was sent to each county member of the committee, a copy of which is as follows:

"The Committee of the State Medical Society, for the encouragement of the examination of eyes and ears of school children throughout the state are anxious to get a definite report of the work that is being done at this time. While in many parts of the State the work is being carried on satisfactorily, in other places it has been entirely neglected by the members of the Committee. Will you kindly send me at your earliest convenience a report of the condition in your county."

Among the reasons given for failure to accomplish results were, lack of interest on the part of the school authorities, inaccessibility of the

schools in some of the less populated counties, and lack of attention given the "cards of warning" on the part of the parents.

The school authorities in some instances have misinterpreted the motives of the Committee. The initiative coming from the local Committeemen has aroused the suspicion that the work was being done for personal gain rather than for the good that would be accomplished. This prejudice is rapidly diminishing, and each year sees a distinct gain in the results accomplished.

The number of "cards of warning" which were heeded by the parents has been greatly increased in some instances through the services of nurses employed by the city or some civic association. This "follow up" work is being encouraged whenever the opportunity affords. The District Nurse often is able to interest the parent in the welfare of its child when all other efforts fail.

Another attempt was made to ascertain the efficiency of the law in the states where the school examinations are made compulsory. We have been unable to prove that the examinations in these states have been more successfully made than in those where the educational plan is adopted.

Respectfully submitted,

Walter R. Parker, Chairman
Charles R. Baker.
C. L. Ricker.

COMMITTEE ON PUBLIC HEALTH EDUCATION.

There is a growing appreciation of the importance of preventive medicine in the minds of the public, and this is evidenced by the interest manifest in most localities in the state in health conservation and measures. This is the fruit of the steady progress of scientific medicine and confidence in prophylactic means. Reliable and better methods of collecting data have demonstrated what can be accomplished until the advantage and necessity of following well established principles have been made plain to all. The various social organizations have made this subject prominent and a part of their purpose. It is now the function of the medical profession and the State Board of Health to direct the efforts of these factors for consistent advancement.

During the past year this sympathetic and helpful attitude has been especially manifest. The outgrowth of this sentiment is likely to result in much haphazard and illy considered legislation; a "seeing a head and hitting it," rather than laying a sure foundation for the future welfare.

Your committee feels that the most essential and fundamental thing to be done at this time is to extend the power and effectiveness of the State Board of Health by district supervision of health by a full time, well paid officer. This would accord with the system just initiated in New York, and would be a basis for development which should be urged at every opportunity. The efforts of your committee have been along this line, hoping to impress the people with beneficence of such an organization.

To further this cause, a "Good Health Week" was held in Hillsdale County which resulted in a very gratifying co-operation from good men and women throughout the state, the State Board of Health, and the State Dairy and Food Department. The State Board of Health issued a Bulletin or Journal especially devoted to an account of the event, which was widely circulated and brought many inquiries from counties where there was a purpose to inaugurate a health movement, and al-

ready several are planning a similar educational program or symposium. In order to continue and augment the benefit a County Health Committee was appointed to act with the local health officers and State Board of Health in calling attention to abuses and to help in correcting them. An extension of these county or district sanitary organizations is desirable and would do much for sane legislation and law enforcement in the rural districts.

At the next session of the legislature an effort should be made to enact a law similar to the Amberson Bill which failed to pass the last legislature. This can be accomplished if the profession will actively and earnestly espouse the cause.

One of the most potent instructional factors is the Women's Clubs and most of them are including health subjects in the programs. This should be encouraged in every way possible. It is a tremendous influence. Most of the reforms for which we contend are having a sympathetic hearing and public sentiment is ripening for achievement.

Walter H. Sawyer, Chairman.
Joseph T. Sawyer.
R. L. Dixon.
W. H. Price.
F. A. Rutherford.
Jean E. Solis.

REPORT OF THE COMMITTEE ON VENEREAL PROPHYLAXIS

Into every phase of human life, into every activity of man and woman, into the child's mind long before it is conscious of sex distinction, into the boy's and the girl's waking and sleeping hours long before its significance is appreciated, into the adult's working days, impossible of disassociation from his thoughts, into the old man's calculations long after such thoughts are supposedly forever dormant, rises the eternal question of sex impulse. In almost every action, consciously or unconsciously, directly or indirectly, as a factor it is dominant. So deeply rooted is this force that its consideration must be regarded as a moral, physiological, sociological, economical and religious question and only when viewed in this broad phase can its demoralizing, detrimentally physical influence, when improperly exerted, be combated. It has swayed the world's history and is and probably always will be a question affecting the individual and collectively the family, the state, the nation and the world. As such, the most important factor in its prophylaxis is popular *Education*: education first as to what in its broadest physiological sense sex distinction, sex impulse means; and, secondly, as to the heavy toll exacted for abuse of a normal creative function, and methods to be used to safeguard it.

Let us review the forces now at work; forces, though the same in purpose, often diametrically opposite in methods of execution. Education as to the first implies sex education; in itself a very difficult problem, involving in its solution the question of whom to teach, where to begin, where to teach, where to end and whom to select as the instructor. How far shall the problem enter into the curriculum of the school? Shall it be discussed in public halls, in the factory, in the department store? We all know where and by whom ideally the subject should be taught: In the home by the father and the mother. But for reasons easily understood this is not practical except in isolated instances. Outside agencies must assume the responsibility of instruction. Private opinion differs strongly as to what had best be done, and public opinion has not

yet been crystallized; but it is probably safe to say that under proper safeguards as to methods sex education may enter the School, the College and the University and that, other things being equal as to character and personality, the physician by reason of his education, training and inclination is best fitted to impart this information. In Detroit a series of lectures is given every winter in the Public Schools on this subject by a corps of interested physicians, under the auspices of the Board of Education, to the fathers and mothers of the pupils. This seem to be meeting with increasing approval.

The Council on Health and Public Instruction of the American Medical Association includes in its list on health talks instruction in public hygiene and gradually City and State Boards of Health are spreading the gospel of individual morality. Civic bodies, especially those interested in the child's welfare, the various girls' protective associations, the Young Men's and Young Women's Christian Associations, are working to give the child of the City healthy playgrounds and to secure suitable working hours, pleasant living surroundings and healthy recreation for the working girls, incidentally safeguarding their moral health. And the improvement in tenement houses plays no little importance in this advancing morality.

The various legislatures are recognizing the trend of public opinion and are placing on their statute books laws to restrict the propagation of the unfit (Eugenic Laws) and to afford protection to innocent parties in marriage by requiring examination of both parties prior to its contraction. The clergy is awakening to its responsibility and is refusing to sanction by holy writ a union defiled by physical or mental disease, and is requiring a certificate of good health from each party.

Cities and the National Government are adding their efforts to the control of vice and traffic in women. Vice Commissions, notably the one of Portland, Oregon, are being brought into existence to combat the commercialization of vice in whatever form it may be recognized. In Portland a Commission of fifteen public spirited citizens, appointed by the Mayor and loyally supported by the City Council, remained in session eighteen months. Its recommendations were later embodied into city ordinances or state laws. The national government is enforcing the laws against interstate commercialized vice and the law is so specific (the white slave law) and its interpretation so liberal that many convictions have been obtained and the traffic made dangerous. Some of these organizations are receiving state, besides private, contributions to carry on their campaign.

Indirectly, the fight against the liquor traffic, against improper mode of dress, public dancing halls where liquor is sold, solicitation of traffic on the streets, all have their effect in uplifting the general moral tone.

In the manner of suppression of vice probably the greatest divergence of opinion exists—as to whether greater results can be obtained by segregation of the inmates in so-called red-light districts under the surveillance of the police or by the wiping out of the district. In this country at least public opinion is profoundly against the legalizing of vice, so the traffic exists in defiance of law. In principle, elimination is the only course to pursue; but those in practical control in our metropolitan cities maintain that the evil will exist and that it is lessened by segregation, which permits control by police regulation, in spite of the great tendency to graft.

While the advances made in the treatment of venereal diseases have aided much to limit their propagation through innocent channels, it probably has

had no material effect on the extent of the disease viciously contracted.

Thus forces, strong, energetic, determined, are incessantly at work—for, no where as here is eternal vigilance the price of health—to educate public opinion so that there will be moulded a national character of the highest physical and moral type, eager for knowledge and with knowledge the acquisition of a moral rectitude capable of resistance to improper influences. We, as physicians and guardians of the public health, must accept our responsibilities and share the task by lending support by precept, personal behavior and teaching to the principles of conduct which are eternally right, and aid to perfect methods of execution which may as yet be so crude as to defeat the purpose of their existence. We can, as concrete examples, place before the public a knowledge of physical facts, lend our influence to those who seek to eliminate vice, aid the legislator in his task of putting practical laws on the statute books, give support to the laws of eugenics, encourage the examination under proper restrictions of both sexes before marriage; insist with our voice on the single moral code for both sexes.

On the whole the Committee desires to report no "watchful waiting" but "satisfactory progress."

Andrew P. Biddle, Chairman.
Charles E. Hooker
Guy L. Connor

REPORT OF THE COMMITTEE ON LEGISLATION AND PUBLIC POLICY.

Gentlemen: Your Committee on Legislation and Public Policy begs leave to report briefly as follows:

We have felt keenly the loss of one of our most active committee and society members, Dr. Bret Nottingham. Through all the work, preliminary and final, which secured the enactment of the amended Medical Practice Act by the last Legislature, Dr. Nottingham's tact, sterling integrity and knowledge of conditions, both professional and political, were great factors in achieving success. He was always alert and quite sure to do the right thing at the right time; and to him and to his memory the medical profession in Michigan owe much of appreciation for the great work he did so well.

No session of the Legislature having been held during the past year, of course there has been no call for active legislative work by your Committee. There is need, however, of concerted sentiment and unanimity of action by this Society in supporting the efforts being made by the State Board of Registration toward a rigid *enforcement* of the amended Medical Practice Act. The constitutionality of the law has been attacked and the question is yet to be disposed of by the Supreme Court; but as the greatest care was taken in forming the amendments we cannot but believe that the validity of the entire act will be sustained.

We must remember, however, that every prosecution under this act is local; and if the county prosecutor feels the pressure of a heavy public sentiment, which can and should be created and maintained by the county medical society, successful prosecution will follow. The State Board of Registration can do but little more than to initiate or institute action which, if not actively supported by the local medical profession, will usually fail in results. Your Committee would, therefore, urge the creation of a Legal Committee of each County Society. Such a committee can obtain evidence of illegal practice in its community, make complaint

officially and force action by local authorities much more efficiently than can be done by any state board society or similar organization. We recommend that a standing committee of this nature be provided for in each County Medical Society.

Within the past two years much progress has been made in the promotion of public health, both by legislation and administration. The U. S. Public Health Service is forging ahead in the good work, and Michigan has reason to be proud of the fact that she has a State Board of Health second to none in the country in points of activity and efficiency. Our President's address will give us food for thought and incentive to action, and your Committee unhesitatingly endorses every recommendation of the President along public health conservation lines, especially commending the proposition for the creation of the county Health Officer system.

A. M. Hume, Chairman.
H. Bartholomew.
A. T. Abrams.

Committee

REPORT FROM DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION.

The House of Delegates of the American Medical Association convened at the Traymore at Atlantic City, June 22, 1914, and settled down to work with an earnestness and enthusiasm which never waned until the adjournment on Thursday, June 25, 1914.

The four Michigan delegates were present at all sessions and two of them served on reference committees; Warnshuis, on the committee on Sections and Section work, Hirschman on the committee of Miscellaneous Business.

One of the important matters taken up was the formation of a standing committee to revamp the whole section organization of the Association and to report at the 1915 meeting a new plan for the division of the Association work, as handled in the sections. Warnshuis of Michigan, was named as a member of this important committee.

William L. Rodman of Philadelphia was chosen president-elect, and San Francisco named as a meeting place of 1915. Among other matters taken up were the following:

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION. This committee recommended for adoption a resolution calling for an investigation of the conditions under which the degree of Doctor of Public Health and Sanitation and similar degrees were being conferred and to make a report next year. This resolution was adopted.

REPORT OF THE REFERENCE COMMITTEE ON HEALTH AND PUBLIC INSTRUCTION. This committee reported that the resolution of the Section on Dermatology with reference to the Federal control of lepers in Interstate Commerce and provision for the proper care of those affected with this disease by the Federal Government was recommended for adoption by the House. This committee also recommended the adoptions of the resolutions urging that efforts be made to secure legislation designed to make general the adoption of the milk standards and classification of the New York Milk Commission in all communities in the United States insofar as local conditions would permit. They further recommended the adoption of the resolution calling for a proper labeling of lyes and all caustic

substances used in cleansing preparations. The House of Delegates adopted these resolutions.

REPORT OF THE REFERENCE COMMITTEE ON CONSTITUTION AND BY-LAWS. This committee presented resolutions asking that the Committee on Constitution and By-Laws be instructed to draft an amendment to the Constitution and By-Laws providing for the change in time of meeting of the House of Delegates in accordance with the resolution that had been adopted providing that hereafter the House of Delegates should meet on the Saturday preceding the week of the annual meeting of the American Medical Association. The resolution was adopted.

REPORT OF THE REFERENCE COMMITTEE ON LEGISLATION AND POLITICAL ACTION. This Committee expressed itself as impressed by the scope of the work of the Council on Legislation and Political Action, and commended the plan outlined in their report for a general survey of public health conditions and activities throughout the world which would furnish data invaluable in elaborating plans for a national Health Department. They also approved the plan for the investigation of the subject of expert testimony and that the committee draft a bill suitable for presentation to state legislature and report at the next meeting. It was recommended in addition that the publicity committees which it had been decided to appoint in each county society to see that medical news was properly presented to the lay press be appointed by the state societies and be under their jurisdiction. They further recommended the adoption of the resolution urging the enactment of Federal legislation for regulation of manufacture and sale of bichloride of mercury tablets. This report was adopted.

THE SCIENTIFIC EXHIBIT. It was the opinion of those capable of judging that no previous exhibit had equalled this one in point of scientific interest. The seventeen research exhibits were demonstrated more or less continuously, and additional slide demonstrations were given each morning and afternoon. The exhibits embraced a wide scope of subjects, among which were: Experimental Hydronephrosis: Effects upon the Kidneys of Dogs of Collargol Injections. Hereditary Factors in Mice Cancer. Relation of Diet to Tumor Growth. Relation of Gastric Ulcer to Cancer, Lateral Blood Vessel Anastomosis in the Cure of Arteriovenous Aneurysm. Showing Communication of Erythema Nodosum to Dogs. Results of Chronic Lead Poisoning on the Liver in Guinea-pigs. The Effect of Feeding Pituitary Extract in Hastening Genital Development in Rats. The X-Ray in Relation to the Diagnosis of Diseases of the Thorax and Gastrointestinal Tract. The Toxemias of Pregnancy. The Scientific Exhibit from the Mayo Clinic consisted of two divisions: First, that from the Roentgen laboratory, consisting of Roentgenograms and stereoscopic slides of specimens removed at operations, illustrating lesions of the gastro-intestinal tract. Second, that from the pathological laboratory which consisted of photographs and drawings illustrating work in progress on the mode of development of cancer, the pathological relationship of gastric ulcer and carcinoma, a study of the possible relationship of gastric ulcer and carcinoma, a study of the possible relationship of renal carcinoma and nephrolithiasis, and studies in the pathology of the atrophic kidney.

ATTENDANCE. The registration up to Wednesday evening, June 24, was 3,833 for the three days.

LOUIS J. HIBSCHMAN, Chairman.

COMMITTEE ON MEDICAL EDUCATION.

The Committee on Medical Education of the Michigan State Medical Society begs leave to report as follows:

In Michigan, as elsewhere throughout the country, efforts to improve conditions bearing on medical education have continued to hold the interest of those most concerned in the administration of our medical schools and of the profession in general.

These efforts, so admirably directed by the Council on Medical Education of the American Medical Association and the Association of American Medical Colleges and State Boards of Registration have proceeded along these lines:

First, The standardization of medical schools based on certain requirements essential to successful medical education. The matters which have been regarded as important are: 1. The success of the graduates in their examination by State Boards. 2. Preliminary education requirements. 3. Character of curriculum. 4. Character of buildings. 5. Laboratory facilities and instruction. 6. Dispensary facilities and instruction. 7. Hospital facilities and instruction. 8. Number and qualifications of trained teachers and the number of these giving their entire time to school work. 9. Ideals governing the conduct of the school. 10. Laboratory facilities and equipment with apparatus.

The result of judging medical schools by these standards has brought about the arranging of medical schools in groups according to their degree of approach to ideal standards. Inability to meet the standard required for acceptable medical education together with the requirement of State Licensing Boards has resulted in the elimination of a large number of medical schools. This elimination has been brought about either through disorganization or consolidation of weak schools into a smaller number of efficient schools. It has resulted in the reduction of schools throughout the country from 158 to 1905, giving instruction to 26,147 medical students and graduating in that year 5,600 students to, in 1914, 101 medical schools attended by 16,500 students and graduating 3,594 students. Eighty-five schools have been closed by merger or otherwise since 1904 and twenty-four schools have been formed which still exist. In Michigan the number of schools has been reduced from seven in 1910 to three in 1914. One of these schools, the Department of Medicine and Surgery of the State University, is classed among twenty-nine medical schools which stand in an A+ class of acceptable medical colleges. The two other schools, the Detroit College of Medicine and Surgery and the Homeopathic Medical College of the University of Michigan have been placed in class A, "a group of colleges which are acceptable but which could, to advantage, make certain improvements."

A spirit of progress has been present in the two leading schools of the State. The Department of Medicine and Surgery of the University of Michigan has during the year increased its equipment by additional hospital facilities which have been secured by the completion of a new hospital for contagious diseases. The total number of beds in the University Hospital is now 374 all of which are available for teaching purposes.

The total attendance of the University Medical School during 1913-14 was 282, its graduating class numbering thirty-six.

During the past year the Detroit College of Med-

icine and Surgery has passed through its first year of reorganization and has added greatly to its facilities for laboratory and hospital instruction. The attendance of this school during the year 1913-14 was 249 and its graduating class numbered fifty-four.

The Homeopathic College of University of Michigan had during the year 1913-14 a total attendance of seventy-three, its graduating class numbered twenty-two.

Two matters seem to have occupied the foreground in the consideration of medical education during the past year. The first of these is the question of the extent of preliminary education that it is best to require for entrance to medical schools. The second is whether it would be advantageous to require a fifth year of hospital work before admission to the practice of medicine.

As regards the preliminary education to be required for entrance to the medical course, there is some difference of opinion. There are but four schools professing to require a baccalaureate degree as an entrance requirement and there are thirty-four medical schools which require as a minimum of entrance requirements two or more years of work in a college of Liberal Arts in addition to the four years of high school education. There are fifty schools which require, in addition to the four year high school course, one year of college work in physics, chemistry, biology and Modern languages.

It would seem from the discussions which have taken place on the subject of entrance requirements that there is a lessening tendency toward increasing the length of the fixed pre-medical course but a feeling that students would be better able to do the work of the medical course if in addition to a two year college course they entered with certain prescribed work in chemistry, physics, biology and a reading knowledge of either German or French, as is absolutely now required.

There has been an increasing influence for good upon standards of medical education exerted by the State Licensing Boards and their action must have an important and very intimate relation to the requirements which medical schools will be forced to adopt for their pre-medical requirements. There are now twenty states which have adopted requirements of preliminary education in addition to the standard four year high school course. In seven states a two-year course of pre-medical college work is required, and in thirteen states one year of pre-medical work is required. Of this second group five will, after this year, require for entrance, two years of college work.

Of the Medical Schools of Michigan, one, the Department of Medicine and Surgery, of the University of Michigan requires two years of college work with certain required work in chemistry, biology and physics. The Detroit College of Medicine and Surgery and the Homeopathic College of the University have as their entrance requirements, conditions of the second group, which is the requirement of the Association of Medical Colleges.

Much consideration is now being given to the second problem of whether it will be advisable or not to add a fifth year, which shall be spent by the student as an interne in an approved hospital or other acceptable clinical work before the M.D. degree will be granted. Already three medical schools have such requirements and the State Licensing Board of Pennsylvania and the Army, Navy and Marine. Hospital services now requires that any candidate to be eligible for a license in that state must have served one year as an interne in an approved hospital.

There has, for some years, been an increasing tendency of medical graduates toward spending a year in hospital work before entering practice. Of the graduates of the Department of Medicine and Surgery of the U. of M. during the past four years, 75 per cent. have voluntarily taken the fifth year before entering practice and a high percentage of the graduates of the Detroit College of Medicine and Surgery.

It would seem that instead of increasing the pre-medical requirements the tendency is to require a fifth year of post-graduate hospital work but it has become evident that the wide differences in the advantages which hospitals can offer to the interne must be adjusted by some process of hospital standardization before a compulsory fifth year can be made generally acceptable to medical colleges.

An interesting development in medical education during the past years has been the offering of graduate courses in public health. Previous to 1914 such courses were offered by five medical schools, two of these Michigan schools. During the past year three other colleges have offered similar courses.

Medical education is becoming increasingly more expensive and the demands for material equipment, the necessity of modern hospital organization under control of the medical faculty, and the high qualification now being required of teachers, brings conditions which can only be adequately met by institutions having large financial resources, and new problems will be continually pressing themselves, but if the standards so ably supported by the American Medical Association and its constituent societies are adhered to, one cannot but feel that they will be rightly solved.

A. W. Barrett, Chairman.
Burt R. Shurly.

The Committee on Tuberculosis made no report.

The reports of these various standing committees were accepted as published in the official program and referred to the Business Committee.

The nominations for the election of the Committee on Nominations were made as follows:

Vaughan—Wayne.
Corbus—Kent.
Young—Huron.
Kitchen—Delta.
Bird—Genesee.
Wallace—Wexford.

The chair appointed as tellers Drs. Simpson, Detroit and Davey of Lansing.

Upon ballot Drs. Vaughan, Young, Kitchen, Bird and Wallace, having received the largest number of votes, were declared elected members of the Nominating Committee.

The chair appointed the following Business Committee:

Brook—Kent.
Cullen—Wayne.
H. A. Stewart—Genesee.
Hornbogen—Marquette
McKinney—Saginaw.

The following resolutions were presented and referred to the Business Committee:

Dr. Miner of Flint, supported by Dr. Ward of Owosso moved the adoption of the following resolution:

"Resolved, that the expense of the Secretaries to the State Meeting of the Secretaries be paid out of the funds of the component societies."

Dr. Howland, Lenawee, seconded by Dr. McKinney, Saginaw, moved the adoption of the following resolution:

"Resolved, that every county secretary be an honorary member of the House of Delegates without vote, but in the absence of the regular delegate and his alternate the secretary delegate shall have the right to vote."

Moved by Dr. Hirschman, supported by Dr. Cullen, that the Michigan State Medical Society instruct its legislative committee to take such action as is required to extend the period of medical relief under the Workingmen's Compensation Act from three weeks to six weeks.

The following resolution was offered by Dr. Haughey of Battle Creek:

"Whereas, it is a difficult, unpleasant and unprofitable position for local men to search out and secure information sufficient to convict an illegal practitioner, therefore, be it

"Resolved, that the State Society employ a state medical detective to serve at the call of the local Medico Legal Committee."

The resolution was referred to the Business Committee.

The following amendment was offered by the Council:

To amend Chapter II, Section 1, of the By-Laws by adding the following: "The dues of members joining the State Society after six months have elapsed shall be one-half of the annual dues. Those joining on or after nine months have elapsed shall be one quarter of the dues."

Dr. Hitchcock of Detroit submitted the report of the Committee appointed in 1913 to make up a fee schedule for services rendered in connection with the provisions of Michigan's Compensation Law.

Upon motion the report was referred to the Business Committee.

Dr. Brook, Kent, moved that the matter of fee schedule be referred to a special committee of three to be appointed by the chair.

Carried.

The chair appointed the following special committee:

Stockwell—Port Huron.
Randall—Flint.
Lawbaugh—Calumet.

Upon motion the meeting then adjourned to reconvene at 8 a. m., Sept. 11, 1914.

HOUSE OF DELEGATES.

SECOND SESSION.

The second session of the House of Delegates was called to order by President Kiefer at 8 a. m. on Friday, Sept. 11, 1914, and upon roll call a quorum was found to be present.

The minutes of the last meeting were approved as read by the Secretary.

REPORT OF BUSINESS COMMITTEE.

The Report of the Business Committee was read by the chairman of that Committee, Dr. J. D. Brook of Kent, as follows:

Mr. President and Members of the House of Delegates:

Your Business Committee begs leave to report as follows:

We recommend that the House of Delegates adopt the report of the Council as read, and that we wish to reiterate the sentiments expressed commending the secretary-editor upon the increase of membership

and the high standard of efficiency attained by *The Journal*.

We further wish to urge that the five recommendations offered by the Council in regard to 1st, The resignation of Dr. Kimball; 2nd, The commemoration of the Fiftieth Anniversary of the State Society; 3rd, The submission of the amendment to Chapter II, Section 1 of the By-Laws; 4th, The amendment to the Constitution and By-Laws of the A.M.A.; 5th, The labeling of all cleansing preparations of caustic character, be taken up separately for consideration by this House of Delegates.

We also recommend the adoption of the report of the Committee on Legislation and Public Policy with special reference to the clause relative to the creation of a legal committee of three for each unit of the State Medical Society, to work in conjunction with the State Board of Registration of Medicine.

We further recommend, that the resolution asking for a detective to be employed by the State Society be rejected since the medical practice act is a state law and should have state officers to enforce it. Inasmuch as the funds of the State Society will not permit the employment of a detective for this purpose and whereas there are ample funds in the treasury of the State Board of Registration, we would urge that the House of Delegates request the Board of Registration in Medicine to employ such detectives when requested by the legal committee of any component unit of the State Medical Society.

We recommend the adoption of the report of the Committee on Venereal Phophylaxis, and wish to place particular emphasis upon the paragraph referring to the "restriction of the propagation of the unfit." We desire to recommend that all persons who have had or are suffering from active gonorrhoea or syphilis be prohibited from marrying until such time as a cure shall have been certified to by methods prescribed under the direction of the State Board of Health. We also indorse the necessity of popular education for the prevention of these two devastating diseases.

Your committee respectfully recommends the adoption, without comment, of the reports of the following committees: Public Health Education, The Committee to Encourage the Systematic Examination of the Eyes and Ears of School Children Throughout the State, Medical Education, Report of Delegates to the A.M.A., Committee on Specialties.

Inasmuch as it is not within the jurisdiction of the State Society to order the payment of the expenses contracted by the component units of the State Society, we would recommend that the resolution from the State Secretaries' Association be not adopted; and we would suggest that the matter of paying the county secretaries' expenses to attend the State Medical Society be referred to the respective component units of the State Society with power to act as their financial circumstances will permit.

We recommend the adoption of the resolution referring to the publication of the transactions of the Secretaries' Association in the *State Journal*.

We also heartily recommend the adoption of the resolution referring to the honorary membership of the secretary of each county society to the House of Delegates.

All of which is respectfully submitted.

J. D. Brook, Chairman.
A. R. McKinney.
E. K. Cullen.
A. W. Hornbogen.
H. A. Stewart.

Moved by Dr. Williams, Alpena, supported by Dr. Chapman, Muskegon, that the Report of the Business Committee be taken up *seriatim*.

Carried.

Moved by Dr. Hirschman, supported by Dr. Vaughan, that the matter of suitable recognition of the 50th anniversary of this Society be referred to the Council with power to act.

Carried.

Moved by Dr. Vaughan, Detroit, supported by Dr. Chapman, Muskegon, that the amendment to Chapter II, Section 1 of the By-Laws be adopted.

Carried.

Moved by Dr. Hirschman, Detroit, that the resignation of Councilor Kimball be accepted.

Supported and carried.

Moved by Dr. Ellis, Benzonia, supported by Dr. Brook, Kent, that the amendments to the constitution by-laws of the A.M.A. regarding the A.M.A. Judicious Council be favored by Michigan.

Moved by Dr. Bell, Wayne, supported by Dr. Brook, Kent, that the labeling of all caustic articles be concurred in by this body, and the Legislative Committee be instructed to secure such enactment.

Carried.

Dr. Brook moved the adoption of the report of the Legislative Committee in reference to the creation of a committee of three for each county society of the state to work in conjunction with the State Board of Registration of Medicine.

Supported and carried.

Moved by Dr. Brook, supported by Dr. Williams, that that part of the Committee's report referring to a medical detective be adopted.

Carried.

Dr. Williams, Alpena, duly supported, moved the adoption of that part of the Committee's report relative to Venereal Prophylaxis.

Carried.

Dr. Stewart, Flint, supported by Dr. Davey, Lansing, moved that the recommendation of the Business Committee be adopted regarding the adoption of the reports of the various standing committees.

Carried.

Moved by Dr. Chapman, Muskegon, supported by Dr. McKinney, Saginaw, that that part of the Committee's report referring to the paying of the county secretaries' expenses be adopted.

Carried.

Moved and seconded that the House of Delegates adopt that portion of the report referring to the publication of the transactions of the Secretaries' Association in the *State Journal*.

Carried.

Moved by Dr. Williams, Alpena, supported by Dr. McKinney, Saginaw, that the Report of the Business be adopted as read and as approved by the above several motions.

Carried.

REPORT OF SPECIAL COMMITTEE ON FEE SCHEDULE.

The report of the special committee on Fee Schedule was read by the chairman of that committee, Dr. Stockwell, and was as follows:

Whereas a largely signed protest against the adoption of the "Universal Fee Schedule" prepared by the committee appointed at the 1913 meeting of the State Medical Society has been submitted to the Society, it is the opinion of the members of your committee appointed to consider the schedule and the protest, that the schedule would better not be

recommended to the State Society for adoption in its present form.

It is also the opinion of your committee that a committee should be appointed to revise the Fee Schedule under consideration as the scale of fees as it stands would not be acceptable to the State Society.

Further, it is the recommendation of your committee that a committee of revision be appointed. It shall be given power to act for the State Medical Society in adopting and putting in immediate use any fee schedule which may be satisfactory to all the members of the said committee, providing it be also acceptable to the Industrial Accident Board.

C. B. Stockwell, Chairman.

H. E. Randall.

A. I. Lawbaugh.

Dr. Chapman, Muskegon, moved that the Report of the Committee on Fee Schedule be adopted with the amendment that before the Committee has power to act that the fee schedule be submitted to each county society for adoption or rejection.

Supported and carried.

REPORT OF COMMITTEE ON NOMINATIONS.

Your Nominating Committee would respectfully recommend the nomination of:

First Vice-President—L. W. Toles, Lansing.

Second Vice-President—A. W. Hornbogen, Marquette.

Third Vice-President—C. D. Munroe, Jackson.

Fourth Vice-President—V. A. Chapman, Muskegon.

To represent Councilor District No. 3—S. K. Church, Marshall.

Delegates to A.M.A.—L. J. Hirschman, Detroit; H. E. Randall, Flint.

Alternates to A.M.A.—J. D. Brook, Grand Rapids; A. E. Yale, Pigeon.

Next meeting place to be Grand Rapids.

All of which is respectfully submitted.

J. W. Vaughan

S. B. Young

A. S. Kitchen

W. G. Bird

W. B. Wallace.

Moved by Dr. Brook that the report of the Nominating Committee be accepted.

Supported and carried.

Moved by Dr. Hirschman, supported by Dr. DuBois that the secretary be instructed to cast the ballot of the House of Delegates for these nominees for the various offices.

Carried.

The Secretary did so cast the ballot and the officers as nominated were declared elected.

Moved by Dr. Hirschman, Wayne, supported by Dr. Bird, Flint, that a committee of three be appointed to make such arrangements as may be deemed advisable for the provision of a special car or cars each year to take the members of the State Medical Society to the meeting of the American Medical Association, this committee to be known as the Committee on Transportation.

Carried.

Upon motion the meeting was adjourned *sine die*.

Guy L. Kiefer, President.

F. C. Warnshuis, Secretary.

FIRST GENERAL SESSION.

The First General Session was called to order at 10:30 a. m., Sept. 10, 1914 by President Kiefer who asked the audience to rise during the following prayer by Rev. James S. Williamson:

Prayer:

O Thou, ever living and eternal spirit, who no physical eye has seen, who no physical hand has grasped, and yet Thou art ever present to the intelligent, thoughtful, open-minded heart; we worship Thee, Thou hast made us, and not we, ourselves. Thou hast given us the life that is worth while. Thou has given us a life that takes possession of two worlds—the world of matter and the world of mind. Children of Thine, we attribute that share of your own nature, that we may know Thee, that we may follow Thee, that we may serve Thee, and here as we meet, this group of Thy servants, who have been called by no ocular force, but by the inner motion of the spirit to the high service of man and God to aid Thee to drive from the human life the enemies of its being, disease and torture and pain. We thank Thee for the dignity conferred upon us and the calling of us into this high service for those attributes that make life worth while, for the blessing of work that stirs and challenges the spirit, for the benediction of the world, the wife, the child and the home, the country and all our kind; for recreation which calls us from the strain and worry of life, and ultimately leads us into a senses of Thy power; and above all the capacity to turn upon ourselves and hear the still small voice that is ever speaking, ever helping, ever aspiring. Bless this company of Thy children with abundance of Thy presence so that it may be lifted up to its best. And in this land of peace and plenty with all that means we would raise our cry to Thee for our kindred across the sea, where demons of grief, of envy and insanity of feeling have driven men into the awful scourge and curse of war; for those who are to suffer, and all that scourge means; for the innocent, the helpless and even the unborn children of men. O God, how hard it is to see the passion and hate of men, and yet after that is passed we realize that life is not ideal, but iron dug from the earth and heated hot with burning tears. Were we to believe in ourselves we must even in the storm believe in Thee. Bless us, O God, not according to our deserts, but according to the great wisdom and love of Thy loving spirit, for Thy namesake we ask it. Amen.

The president introduced Mayor Reutter of Lansing who delivered the Address of Welcome from the city of Lansing:

Mr. President and Members of the State Society:

One of the pleasant duties assigned to a city's chief executive is that of welcoming the members of different organizations who visit our city, and I wish to assure you that I deem it an honor to have the privilege of extending this greeting to you. To me an organization like this, bound together by professional and friendly ties, represents the elements which tend to the betterment of mankind and conditions in a great many ways. The closer the bonds of friendship the stronger the organization, and the more rapid the progress in your profession, as well as other things that we as good citizens are interested in. No longer does a man hope to attain the highest standard of proficiency in a chosen calling by depending upon himself alone. Exchange of ideas promote efficiency and that in the highest degree is the standard every progressive and professional man strives to inject into his business, not only for the increase of profit that he may derive thereby, but because also of the satisfaction one receives from being commended for services well done. I assume that your organization was created with the idea of bettering yourself and conditions in your life's work. The younger men among you want the benefit of those of you who have had years of experience and practice, and I am sure that you are entitled to that, for you thus raise the standard of your profession in usefulness and respectability. I welcome you to this city because I realize that you have in view an honorable and useful purpose; that you intend to spread the gospel of service and help; that you intend to educate your members to the highest degree of efficiency and skill in their vocation. I am anxious that you succeed in all your ambitions, and that your meeting this year will be one of the very best in your history. I assure you that every institution in Lansing that can assist you professionally or be of entertainment to you in any way will be glad to do so. I sincerely hope that your meeting here will be of pleasure and profit, and that as a result of it you will return to your homes better able to cope with the difficult problems that your calling presents to you. Make use of us while here and we will do all in our power to encourage you to hold future meetings in the city of Lansing.

Dr. Samuel Osborn, President Ingham County Society, delivered the following address:

Mr. President and Members of the Michigan State Medical Society: Honored guests and most honored president of the American Medical Association; Visitors: The Ingham county medical county welcomes you. We have already been more than repaid for all we have done in the good feeling that you have manifested toward us. We hope that you will have

a pleasant and profitable meeting. We hope that you will like us better after you have been here. We know already that we like you better. In the preparation for this morning I appreciated that wit and eloquence are what you want. If brevity is the soul of wit, the one who has spoken before has described my feelings at the present time. I will quote from him: "Good speakers are no longer available. Demosthenes is dead, Cicero is dead, and I am not feeling very well myself."

Dr. Guy L. Kiefer, responded with the following:

On behalf of the State Medical Society I desire to thank the gentlemen who have spoken, Mayor Reutter and Dr. Osborn, for their kind words of welcome to the members of the Society. I am sure they want me to say to the committee on arrangements of your local society and to your other additional committees and members that we greatly appreciate your efforts. It is a pleasure and should be a privilege to any citizen of the state to come at any time to visit the capital city with its legislative halls and its attractions. It is an additional pleasure and privilege for medical men to come here under these auspices, to come and be received as we have been received and treated in the way that we have been treated. It is customary for local societies in the various cities to do their utmost to make the members and visitors comfortable and happy during their stay, but it does seem to me that Ingham county has put all past meetings in the background as far as successful efforts are concerned. I am sure the members of the society will be pleased to take advantage of the kind invitation to visit the Agricultural College and various other institutions and places of interest in the city in automobiles. I want to say to Mayor Reutter that the members of the State Medical Society will take advantage of the hospitality you have offered. Again in behalf of the State Society I wish to express the sincere thanks of every one of its members.

Dr. E. W. Toles, Chairman of Committee on Arrangements:

Mr. President and Members of the Society: First I want to express our appreciation and your appreciation to the Board of State Auditors and members of the Supreme Court and to the superintendent of this building for allowing us to use this building for our meetings (Applause), turning the whole thing over even some of the offices, the Superintendent of Public Instruction giving his private reception room to one of the sections. We were surprised at the way they opened up the building and the spirit shown in doing it for you. We appreciate that. I wish at this time to make just one request with regard to the care of the rooms and the request is that you do not smoke in the room of the Supreme Court above; I suspect that this room and the Senate Chamber have seen smoke before and have no suggestions concerning them. The Governor cannot be here today, but will be here tomorrow at this session. You all know Gov. Ferris, Dr. Ferris, who is always interested in the profession and I know that you all want to hear his words of welcome in behalf of the state and other messages that he will have for us. I hope a good attendance will be at this meeting. The reception committee who meet all trains, this being a dry town, tried to have all baggage handled carefully. I hope no accidents have happened, but if any breakage has occurred it should be reported to the committee, as I understand these things can be fixed up yet. To the ladies: We are glad to see so many ladies here and will say to you that you are to be entertained in the beautiful new woman's club house which is a gift from Mr. R. E. Olds. We want every lady to be there at 2 o'clock. The committee will be at the hotel at 1:30, so just make yourselves known and they will see that you have a good time at Bridge or it might be 500. We recommend that you go down there, and you will be given the opportunity of taking an automobile ride at 4 o'clock. We want you to attend the President's reception at 6 o'clock and the banquet at 7 o'clock.

The Report of the House of Delegates was read by the Secretary.

President Guy L. Kiefer then called Vice President Randall to the Chair.

The Vice-President called upon President Kiefer who delivered the Annual Presidential Address entitled: "The Modern Practice of Medicine." The address was discussed by Drs. V. C. Vaughan, Sr.; C. L. Wilbur; Prof. Gunn and W. H. Sawyer. (The address and discussion will be found on another page of this issue.)

Herbert V. Barbour, Esq., of Detroit, was called upon and responded with an address entitled: "Some Factors That Cause Mal-Practice Suits."

The meeting then adjourned.

Under the order of business of Nominations for President, Dr. Eugene Boise, of Kent County, nominated Dr. Reuben Peterson of Ann Arbor. The nomination was supported by several. There being no other nominees the nominations were closed.

SECOND GENERAL SESSION.

The Second General Session of the M.S.M.S. was called to order at 11:00 a. m., Sept. 11, 1914. President Kiefer introduced Governor Woodbridge N. Ferris who delivered, by invitation the following address:

GOVERNOR FERRIS:

Mr. President and Members of the Michigan State Medical Association. I knew that you had a crowded program and I have violated my usual practice and put a few things down—not because they were of any special importance—on paper so I might get through and be dead sure that I knew when I was through. I may perhaps stray outside of the lines, but will not take any large amount of your valuable time.

I have never had very much to do with medicine, and don't want to. I don't want to be misunderstood, I am in favor of a few drugs—a very few drugs—and I am anxious that the medical profession will know more about drugs so there will be still fewer. I am aware that I run squarely against opinions that you have a right to entertain, but I entertain these notions with so much enthusiasm that I cannot help expressing myself.

One year ago I had the pleasure of speaking to your splendid organization at Flint. Since that happy event I have had much to do with doctors. I have gone to them again and again for advice. I have read medical journals and medical books to some purpose. One thing comes to my mind with terrific force. Do not tell a patient his or her case is hopeless. I recall several illustrations. I will mention only one. Five or six years ago an eminent specialist in Chicago said to a Michigan woman patient: "You may live three months, not longer." A fortnight later the woman called on this specialist, only to have his previous opinion repeated. This woman is in good health and has reason to believe that she will live many years more. We pay for encouragement as well as for medicine. Men learned centuries ago that Nature is the great healer. It is one of the functions of the real physician to hold out hope until the heart ceases to beat and the last breath is drawn. There is ample time to get ready for the funeral after the patient is dead. Here is what Dr. Crawford R. Green says:

"We are often told regarding a patient that his case is hopeless and the doctor has given him up, or the doctor has stopped coming because he can do no more. One must submit that medical ideals and traditions cannot improve so long as there are physicians who give their patients up or physicians who can do no more. It must be an awful experience to the dying to sense from the conduct of the physician that he has given up the fight. No fight with death is ever lost until the final curtain falls; and if the patient has reposed his confidence in the physician, if he has given his life into his keeping, his confidence should be honored as a sacred trust to be guarded steadfastly to the end."

I am inclined to think that some of the isms of this and every other age would never have been born if the medical profession had devoted a little more time to acquiring a knowledge of human nature rather than increasing their faith in the mechanical action of drugs. I rejoice over the fact that our best medical colleges are giving an ever increasing amount of attention to abnormal and normal psychology. Man is a living creature whose hopes and fears have a mighty influence over his physical welfare. It is not the business of the physician to browbeat and discourage his patient. You may denounce bad habits and harmful modes of living to no purpose. Much of the so-called sex-education is destructive and demoralizing. You cannot scare men and women into health and right modes of living. By this method you get destructive reactions

and defeat the very end hoped for. Education and medical practice must be positive and not negative. We must seize upon the dominating elements of strength, not upon the dominating elements of weakness in order to make headway in restoration or reformation. Much of the so-called sex-education is rotten. I think that a lecture that has to be given to a segregated audience carries with it large dangers. In my own experience I have always found it was better to speak to the men and women together and in a positive and definite way. Lectures that are fit for boys are fit for girls, lectures that are fit for men are fit for women. In this world the sexes live together. Why not educate accordingly? Why not teach and preach cleanliness first, last and all the time? Why not devote more time to saving the potentially clean? Why devote so much time to the unclean, except to quarantine or exterminate them?

In my former address, already referred to, I made a plea for the youth of our state, particularly for the boys and girls attending our public schools. Today there are 572,201 school children in Michigan schools. Tens of thousands have serious physical defects, so serious that they are handicapped in their efforts to secure a common school education. In the Ferris Institute a large number enroll annually who have defective eyes. Not a few of these students drop out of school, abandoning forever the hope of acquiring an education. You must bear in mind that most of these students are mature men and women. We advise them to consult specialists, but they have waited too long in order to secure the best possible results. Ask men who are raising corn in order to grow hogs to buy more land to raise more corn to grow more hogs what value they put on sight and, if you make your question personal, you will get a satisfactory answer. For example, ask him: "Would you be willing to become permanently blind for one million dollars?" He would consider this question a flagrant insult. Dr. George M. Gould probably exaggerates the awful consequences of eye strain, nevertheless the consequences are worthy of serious consideration. What I have said about defective seeing applies with equal force to defective hearing. I have heard the child "hard of hearing" called a blockhead. The deaf child frequently gets as far away from the teacher as he possibly can, hears imperfectly, consequently understands imperfectly and answers imperfectly. It is impossible for me to find language adequate to describe these tragedies of childhood. I wish you would visit some of our state institutions, and we sometimes apologize for these institutions. Had I my way about it I would like all education, including the university, to circle around one center, health. I would build on that center and build out. As it is it is secondary and worse than secondary. Comparatively little attention is given to the care of the teeth of children even in this enlightened age. In the larger cities the school authorities are waking up. They have, through medical advice, discovered that there is a vital relation between teeth and digestion, between digestion and brains. If, however, you wish to find a group of children trained in the use of the tooth brush visit the Coldwater school. These unfortunate children, supposedly unfortunate, are treated by the state far more sanely than are the children of the free public schools. I might comment on other physical defects after the manner that I have discussed eyes, ears and teeth. This is unnecessary at this time. Every worthy citizen will concede that every child entering the primary grades of our public schools should, so far as possible, enter without physical handicap. The public schools are now carrying altogether heavier burdens than they are capable of carrying. If you would com

pare the burdens which the public schools now carry with fifty years ago I think you would appreciate the embarrassment under which the educational forces now labor. If there is an increase in crime they lay it to the public schools. It does not belong there. We teach the girls cooking, I have no objection to that, but the schools are doing the work of the home, the work of society and soon we will be asked to establish incubators so that the new born infants may be taken care of outside of the home. I know I am radical on that point, but so many men on the platform attribute things to the public schools that they know nothing about. The public schools of today are one hundred per cent. superior to the public schools fifty or one hundred years ago. In the matter of spelling, of writing and in the matter of arithmetic they are better, yet there are some who cannot spell nowadays. They never could spell, they never could figure. They are not the majority. Let us begin at the bottom and do something that lies within the power of the state.

The Amberson bill has been alluded to in this convention. Would to God that the bill passed. Of course there was a great cry about the expense, but the question is not of tax and expense, but what do you get for your dollar. If you believe in cheapness that is another matter and should be discussed on the basis of cheapness. If you believe in humanity, of course that costs money. Honest men who are patriotic are willing to pay money. Had the bill passed it would have cost the state something. Let Michigan provide for a physical and mental examination of all of her school children. Immediately I hear the cry that this would involve tremendous expense. Expense is not the right word. It would involve from the standpoint of money profit the greatest paying investment ever made by the state of Michigan. I am not telling you anything new. Only this morning I read of our achievements in stamping out hog cholera; save the hogs, and save a few of the children. Intelligent men do not cry out against the cost, for the simple reason that intelligent men know the value of hogs. Sooner or later we will know the worth of a normal healthy child. We, as patriotic citizens, are pledged to give the children a square deal. Are we doing it in Michigan?

I am mighty glad that the committee on revision and consolidation of the marriage laws have domestic relations under their consideration. I am glad that they have recommended to the next Legislature some regulation—some needed legislation with regard to marriages. One item was that three months' notice must be given, and no license could be granted until three months had transpired. This might produce for the time being an exodus from the state. I think the doctors would be surprised if they could see the letters I received during the last Legislature when the marriage bill was up. Letters from men who ought to have ordinary intelligence, regarding their personal liberty. Why bring this matter before the State Medical Society? Because you of all men know the importance of legislation along the line of public health. You possess the requisite knowledge for preparing the way for this phase of humane legislation. Within limits you can awaken the people to a realization of their own needs and highest welfare. Whatever progress has been made along this line can be attributed to the medical profession. It would be wise for the state to go farther in the work of conserving public health, but I beg of you to take care of the children first. I am aware that logically you should begin at the beginning and see that the children are decently born. You are, however, obliged to deal with children already born. Some far off day if this human

race does not commit suicide this problem of being decently born will be solved. I hope you will solve the problem that can be solved *now*. For the time being do it as a dollar and cents investment. The other greater consequences will inevitably follow.

In the last session of the Legislature something of real value was accomplished in medical legislation. As a consequence there are fewer medical parasites in Michigan. You made a good beginning. Do not rest on your oars. Bear in mind that Lydia Pinkham though dead still lives to answer personally thousands of letters received from her afflicted sisters. Remember that Lydia is only one of a large group of immortals. I would not ask you to push legislation beyond law enforcement. No one thing is so much needed in Michigan and in every state of the Union as persistent law enforcement. It is the enforcement of a good law that counts. I find people hesitate about making complaints. They are afraid they will antagonize somebody. Well you cannot help antagonizing people. Sometimes it is a wise thing to do, and law enforcement strikes me as a mighty important thing. The man who takes the initiative in securing the enforcement of a good law is a public benefactor. Enforcement of good laws is the sure cure for anarchy and lawlessness.

I congratulate the medical profession upon its marvelous progress in the past seventy-five years. Dr. William Osler in his lecture, "Man's Redemption of Man," says of the introduction of anesthesia: "On October 16, 1846 in the amphitheatre of the Massachusetts General Hospital, Boston, as new Promethens gave a gift as rich as that of fire, the greatest single gift ever made to suffering humanity." I quote further from Dr. Osler's lecture: "More widespread in its benediction, as embracing all races and all classes of society, is the relief of suffering and the prevention of disease through the growth of sanitary science in which has been fought out the greatest victory in history. The name of Lord Lister is an inspiration to every surgeon. The splendid achievements of Jenner, Robert Koch, Pasteur, Reed and a score of others compel me to give to the medical profession the credit of 'Man's Redemption of Man.'"

Now just another word. It isn't here, it came to me this morning. I would like to have this body of splendid experts tell me what is going to be done in Michigan and states similarly situated for doctors in the country. The news has come to me this morning, and not rumor, that village after village of say 400 inhabitants have no physician. I wish some way could be devised that men graduating from splendid medical colleges could see the tremendous field of usefulness in the country. I was told by an eminent physician that soon there would be no country physicians. God pity us when that time comes. I have a great love for the old country physician, not only for the knowledge of his work but what he did for father, mother, son and daughter that was away outside of the medical profession. I really feel that the young man with his splendid talent should not think it could only be used to advantage in the city. In the country where the telephone does not as yet exist he should not be afraid to give all his help and be an inspiration as the country family doctor.

The Secretary then announced that 472 votes had been cast for Reuben Peterson as President for the ensuing year. Dr. Peterson having thus received the unanimous vote of the Society, President Kiefer declared his election.

The Chair appointed a committee to escort the President-Elect to the Chair and presented him with the gavel.

DR. REUBEN PETERSON:

Mr. President and Members of the State Medical Society: I thank you most deeply for the honor which you have conferred upon me. I feel the honor, coming as it does, that you have forgotten the mistakes and errors that I may have committed, that you have elected me to this high office for what I have tried to do in Michigan, and for that I heartily thank you. There is a great year before us in more ways than one, and I feel more or less incompetent to take up the duties of the office of president of this great association, especially when you have had a meeting like this. In more ways than one I think it would be better to elect a president for two years instead of one, but you have elected me to the office of president and you will have to abide your decision. I can only say that I will give up the necessary time and effort to the office, and while it is customary for the president, when he accepts the office, to say that he will make the next meeting a banner meeting, these are simple words, it is the work which tells. I can only promise that with your help I will work faithfully to that end.

Dr. V. C. Vaughan moved the adoption of the following resolution which was supported and carried:

WHEREAS, The medical books and periodicals now in the State Library are inadequate to the needs of the medical profession of this state, and

WHEREAS, A collection of said books and periodicals available to members of the profession, and allowed to circulate under rules and regulations of the State Library, would prove of inestimable value, therefore be it

RESOLVED, That a committee be appointed by the President of this Association to prepare and present a petition to the Legislature of 1915 requesting that sufficient funds to provide such a collection in the State Library be provided, and be it further.

RESOLVED, That such committee, when appointed, shall receive the support of this Association in the use of all honorable means to secure the necessary appropriation.

Dr. Hirschman of Wayne County supported by Dr. Hornbogen of Marquette County moved that our vote of thanks be tendered to all who had labored to provide for our comforts during this meeting. Carried.

President Peterson then declared the meeting adjourned *sine die*.

(Signed) F. C. WARNSHUIS, Secretary.

SECTION MEETINGS.

It has been a long time since the sections on scientific work presented such an excellent set of programs. All the papers that were read elicited a large attendance and called forth active and pointed discussions that enhanced their value. Each section had a large attendance at every session and at no time was there a waning of interest. Frequently did we hear the expression that our scientific work was equal to that of national work. Words of praise and appreciation were unstintingly bestowed upon all those who were responsible for perfecting the section work. As these papers and discussions will appear in succeeding issues of *The Journal* it is not necessary to comment upon them at this time. They will be published as rapidly as space permits.

The following officers were elected in the several sections for the ensuing year:

SURGERY.

C. D. Monroe Jackson, Chairman.
Alex. Blain Detroit, Secretary.

GENERAL MEDICINE.

B. R. Corbus Grand Rapids, Chairman.
B. A. Shepard Kalamazoo, Secretary.

GYNECOLOGY AND OBSTETRICS.

H. W. Yates Detroit, Chairman.
W. M. Manton Detroit, Secretary.

OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

Stanley G. Miner, Chairman Detroit
Wilfrid Haughey, Secretary Battle Creek

COUNTY SECRETARIES' ASSOCIATION.

The Annual Meeting of the County Secretaries' Association was called to order in the Capitol Building, Lansing, Sept. 9, 1914 at 2:30 p. m.

In the absence of President Southworth, Dr. Guy L. Kiefer was elected temporary president.

The address of the President of the State Society was rendered by Guy L. Kiefer as follows:

"I was somewhat surprised when I found that what I might have to say here was given the title of an address. Had I not read it in the best state medical journal in the country—The Journal of the Michigan State Medical Society—I would not have believed it, but anything you read there you must believe. Anyone who did not think that a short number of months ago has learned it from the nature of The Journal.

At a recent visit in Atlantic City, and while attending the meeting of the American Medical Association, I was present when the President of that Association made the statement that he considered The Journal of the Michigan State Medical Society the best state journal issued; and he made that statement to a man from another state with several men from still different states listening, and it seems to have met with general approval, at least there was no disapproval. I say this because it is a fact and because it calls to your attention the necessity of close organization. I would like to say, what I am about to say, to the members of the County Secretaries' Association who are not present—it hardly seems necessary to say it to those who are present—that in order to strengthen the State Medical Society through its county societies we must have good, active secretaries. He is the one who must instill into the physicians in his community, even those who are not members of his society, the need and advantages of their being members. These advantages of membership in the county society are going to be brought out in a number of speeches that are to follow. The whole discussion is to be in reference to that particular thing—to why we should have strong county societies, why we should realize that the time is past when a physician should go it alone.

It has been my great pleasure this year to visit several different societies in the state and to find that the old feeling of lack of harmony among the profession has disappeared and in most cases is wanting. I have been struck by this feeling of harmony. Not very long ago, within the past two weeks, I had the pleasure of visiting the Upper Peninsula Medical Society at Houghton. The Upper Peninsula Society is an institution that, as they told me during the meeting, has no constitution or by-laws, but they are men of the various county societies who get together to cement their relationship even closer than by annual attendance at the State Society meeting. I do not want it understood that they find it necessary to have a society of their own, because nowhere in my travels throughout the state have I seen and heard expressed greater loyalty than by the men I met in the Upper Peninsula. The reason a larger percentage of these men do not manage to come down here is because of the distance—not so much the distance as the inconvenience of getting here. I was struck so forcibly with the interest that the men in the upper peninsula showed in the workings of the State Medical Society that it seems to me to be not out of place to say to you secretaries representing your various county societies, that it might be well to consider in the future to have an occasional meeting—not every year, perhaps every third year, but a meeting that might be more close to them. It seems to me to have a mid-way meeting perhaps every other year at a place like Mackinac Island might be well, especially in the summer months.

The result of all of my observations has been our strong organizations, which proves absolutely that in unity there is strength, and in nearly all of these organizations the man who has done the work is the secretary. He is the man of course upon whom the work involves. I am sorry, as I said

before, that there are not more secretaries here to hear what I have had to say along that line. I am not going to take your time for any extended discourse on this subject because I am anxious to hear what the men have to say on the various subjects that have been allotted to them. I therefore without the further taking up of your time will proceed to call upon the next speaker who is to talk upon the subject:

"Is the Physician Justly Paid for His Services? If Not How Can We Increase His Income?" Dr. Clarence E. Simpson of Detroit.

Dr. Simpson then read his paper which was discussed by Dr. Kingsley of Battle Creek.

It was suggested that the discussion of the address of Dr. Greene, "The Public Responsibilities of the County Society," be deferred for the present and the discussion be taken up together with the discussion of the next two papers, for the reason that they were along the same lines.

There being no objection the next paper, entitled "The Type of Program that is of the Greatest Value and Creates the Greatest Interest and its Presentation," was read by the Secretary of the Secretaries' Association, Dr. C. B. Fulkerson of Kalamazoo in the absence of the author, Dr. Theodore A. Felch of Ishpeming. (This paper will be published in full in a succeeding issue of *The Journal*).

The next paper, "Organized Effort," was read by the Secretary of the State Society, Dr. F. C. Warnshuis, Grand Rapids.

The motion was made that the discussion of the papers be deferred until the secretaries' dinner at 5 p. m., which motion was seconded and carried.

The next paper, "What a Councilor can do to Aid his Medical Society," in the absence of the author Dr. J. W. DuBois, was referred to Dr. Hume to be taken up at the dinner hour.

The next order of business was the nomination of officers and the name of Dr. Fulkerson, Kalamazoo was placed in nomination for President of the Secretaries' Association for the ensuing year.

The nomination was unanimously supported.

The motion was made that the nominations for president be closed, which was duly supported and carried.

It was moved that the rules be suspended and that the president cast the vote of the association for Dr. Fulkerson for President for the ensuing year.

Supported and carried.

The vote was so cast and Dr. Fulkerson was declared elected.

The motion was made that the name of Dr. Wessinger, Washtenaw be placed in nomination for Secretary of the Secretaries' Association, and that the rule of the society be suspended, and that the secretary cast the ballot of the association for Dr. Wessinger for Secretary for the ensuing year.

Supported and carried.

Upon motion the meeting adjourned, to re-assemble at 5 p. m. as the guests of the Council at a dinner at the Hotel Downey.

At the close of the afternoon meeting the members repaired to the grill room of the Hotel Downey where a dinner was tendered by the Councilors. This was acknowledged by a rising vote of thanks by the secretaries.

Between courses the following subjects were discussed—a brief synopsis of which is submitted below:

Dr. DuBois of Grand Rapids gave an informal talk on "What a Councilor can do to aid His Medical

Society." Dr. Hume discussed this subject somewhat at length in his usual humorous way.

Dr. A. H. Rockwell, Kalamazoo, in his remarks gave a very lucid resumé of the origin and establishment of the Kalamazoo Academy of Medicine and the great contribution toward its success by the late lamented Doctor Van Deuzen. He also spoke of the Academy's re-organization and admission as a unit in the Michigan State Medical Society.

Dr. A. E. Bulson of Jackson, among the many other good things that he said, paid a high tribute to the late lamented Leartus Connor, who was the first to suggest a council in the governing of our State Society.

The wisdom of making the county secretary a member of the House of Delegates was suggested by Dr. Rockwell. A resolution bearing upon this subject was afterwards presented to the House of Delegates.

Dr. Kingsley of Battle Creek discussed the advisability of our Medical Society employing a State Medico-Legal Detective. A resolution embodying this was submitted to the House of Delegates.

Dr. Kiefer made some very timely remarks on the duties of every president and every secretary and every member toward his own local society. Dr. Kiefer suggested that every county society send a committee of five to Lansing whenever an important piece of medical legislation is to be considered. Dr. Hume warmly seconded this idea.

Dr. Miner of Flint spoke in defense of the Medico-Legal Detective idea, as did also Dr. Fulkerson of Kalamazoo.

Dr. Seeley of Mayville reported for Tuscola County a membership of 100 per cent. of the eligible members. This was received with applause.

The motion was then made and lost, that the secretary of each component society be a delegate.

It was then moved and lost that the delegate from each unit be the secretary. This resulted, however, in the resolution mentioned above, which was submitted to the House and which appears elsewhere.

A motion was made by Dr. Miner, supported by Dr. Ward, Owosso, that each component society pay the expenses of its secretary while attending the meeting of the State Secretaries. This resolution was submitted to the House of Delegates.

A motion was then made by Dr. Ellis and supported by Dr. Ward that the transactions of the Secretaries' Association be published in full in the *State Journal*.

Carried unanimously.

Upon motion the meeting adjourned.

(Signed) J. A. Wessinger, Secretary.

ENTERTAINMENT.

The profession of Ingham County amply verified our opinion of their reputation as efficient hosts. The entertainment features were of such nature as to serve to cause every member to depart home filled with only kindly feelings for the hospitality he experienced.

All incoming trains were met and the visiting members were conveyed to their hotels in automobiles.

On Wednesday evening a most enjoyable smoker

was provided for the early arrivals and that it was appreciated was attested to by the fact that it was well past midnight before the members disbanded.

On Thursday afternoon a sufficient number of automobiles were placed at our disposal for a ride to the points of interest in and around Lansing.

On Thursday afternoon the visiting ladies were delightfully entertained at the new Ladies Literary Club of Lansing.

At 6 o'clock, Thursday evening the President's Reception was held in the Masonic Temple. In the receiving line were: Dr. and Mrs. Guy L. Kiefer, the Misses Kiefer, Dr. and Mrs. S. Osborne, Dr. and Mrs. Barber and Dr. F. C. Warnshuis.

For one hour a continuous line of members utilized this opportunity for paying their respects to retiring President Kiefer.

At the close of the reception the members repaired to the dining hall of the temple and 460 sat down to a delightful menu that was served. The meal disposed of, a program of five vaudeville numbers was served by professional artists. Interposed between the vaudeville numbers, Toastmaster Kiefer supplied amateur endeavors from among our membership.

All in all the time devoted to pleasure was refreshing and pleasing and we cannot fail to acknowledge our indebtedness to Dr. C. L. Barber and his entertainment committee.

The following committees of the Ingham County Medical Society merit our sincere thanks for the efforts they expended to assure the success of our meeting:

Arrangements—L. W. Toles, C. M. Davis, C. V. Russell and W. E. McNamara.

Reception—Fred M. Huntley, G. F. Bauch, L. C. Town, Cora P. Ganung and H. Landon.

Entertainment—C. L. Barber, M. L. Holm, M. L. Cushman, J. G. Rulison and S. H. Culver.

Hotels—H. A. Haze, F. M. Thoms, R. E. Miller, W. G. Wight and Seth Jones.

Exhibits—F. J. Drolett, J. E. McIntyre, G. H. Brucker, E. I. Carr and F. N. Turner.

LIST OF MEMBERS WHO REGISTERED.

Allegan County.—R. P. Stark, A. L. Van Haven, R. J. Walker, A. H. Wicks—4.

Alpena County.—C. M. Williams—1.

Barry County.—C. S. McIntyre, G. M. Lowry, J. W. Rigerink—3.

Baraga County.—R. S. Buckland—1.

Bay County.—C. H. Baker, J. C. Grosjean, J. W. Hauxhurst, A. W. Herrick, H. B. Morse, H. N. Bradley, R. E. Brown, M. A. Williams—8.

Benzie County.—E. J. C. Ellis—1.

Berrien County.—N. A. Herring—1.

Branch County.—N. A. Griffith, E. E. Hancock, S. Schultz—3.

Calhoun County.—A. J. Abbott, A. W. Alvord, W. M. Carling, J. T. Case, B. N. Colver, J. E. Cooper, S. K. Church, E. L. Eggleston, Mary L. Fraser, W. H. Haughey, Wilfred Haughey, H. A. Herzer, L. S. Hodges, J. J. Holes, A. A. Hoyt, J. H. Kellogg, A. F. Kingsley, R. G. Leland, A. E. MacGregor, W. F. Martin, W. C. Marsh, M. A. Mortensen,

Clara Radabaugh, J. L. Ramsdell, W. H. Riley, Carrie L. Stormes, Laura B. Stoner, R. C. Stone—28.

Cheboygan County.—W. E. Chapman—1.

Chippewa County.—E. H. Webster—1.

Clinton County.—J. T. Abbott, W. Bell, E. G. Belling, R. C. Buck, A. R. Coon, G. H. Frace, M. S. Gregory, A. V. Hart, E. Hart, F. E. Luton, J. McGillicuddy, E. L. Martin, E. Schemer, W. Scott, H. D. Squair, J. E. Taylor, M. Weller—17.

Escanaba County.—A. S. Kitchin—1.

Eaton County.—A. W. Adams, A. H. Burleson, G. M. Byington, C. W. Ellis, Martha Hixson, C. D. Huber, Flavia J. Knight, A. I. Laughlin, W. E. Newark, P. H. Quick, H. C. Rockwell, C. S. Sackett, Sassaman, E. A. Schilz; A. R. Stealy, W. M. Taylor—16.

Emmett County.—J. J. Raycraft, E. A. Runyan, F. C. Witter—3.

Genesee County.—E. H. Bailey, N. Bates, D. C. Bell, W. G. Bird, B. C. Burnell, C. B. Burr, C. P. Clark, H. Cook, F. L. Covert, J. W. Handy, J. Houston, D. S. Jickling, M. S. Knapp, D. D. Knapp, J. G. R. Manwaring, F. B. Minor, R. S. Morrish, C. H. O'Neil, J. Walter Orr, H. E. Randall, D. C. Smith, H. A. Stewart, M. W. Olft—23.

Gratiot County.—I. N. Brainard, E. H. Foust, M. C. Hubbard, L. A. Howe, C. T. Parkhurst, J. N. Shaffer—6.

Hillsdale County.—T. H. E. Bell, C. T. Bower, B. F. Gunn—3.

Houghton County.—A. F. Fisher, A. I. Lawbaugh, J. G. Turner, W. K. West—4.

Huron County.—Wm. B. Holdship, A. E. W. Yale, S. B. Young—3.

Ingham County.—C. L. Barber, L. Ballard, H. S. Bartholomew, J. G. Bartow, G. F. Bauch, C. D. Black, J. Black, A. F. Burdick, J. L. Burkart, O. H. Bruegel, C. H. Brucher, A. M. Campbell, E. I. Carr, F. N. Chamberlain, W. A. Cochrane, R. H. Crissey, S. H. Culver, M. Cushman, Clara M. Davis, B. M. Davey, F. J. Drollett, F. C. Dunn, O. H. Freeland, D. A. Galbraith, Cora Ganung, G. L. Gramer, A. E. Greene, A. D. Hagadorne, F. H. Harris, G. B. Harris, H. A. Haze, M. Holm, J. Humphrey, F. M. Huntley, F. A. Jones, Freeman A. Jones, Seth H. Jones, R. Lange, R. E. McCullough, J. S. McDaniel, J. E. McIntyre, W. B. McNamara, R. H. Nichols, B. D. Niles, C. H. Murphy, R. E. Miller, Samuel Osborne, A. E. Owen, J. S. Owen, J. B. Park, Flora Ruch, J. G. Rulison, C. V. Russell, T. M. Sanford, E. F. Shaw, F. Thomas, L. M. Toles, O. Tooker, L. C. Towne, F. A. Turner, G. B. Wade, L. F. Weaver, W. G. Wight, C. L. Wilber, H. A. Wilson—65.

Ionia County.—W. A. Grant, V. H. Kitson, H. B. Knapp, E. W. Litle, J. J. McCann, F. W. Martin, F. L. Morse, J. F. Pinkham, G. A. Stanton, J. W. Toan, H. W. Maynard, W. A. Wilkinson, G. P. Winchell—13.

Jackson County.—A. E. Bulson, W. L. Finton, G. C. Hicks, W. Lyons, C. D. Munroe, D. E. Robinson, M. N. Stewart, G. E. Winter—8.

Kalamazoo County.—R. U. Adams, F. Elizabeth, Barrett, E. J. Bernstein, C. J. Brady, E. D. Brooks, C. E. Boys, C. B. Fulkerson, T. E. Grant, L. H. Harvey, J. B. Jackson, H. Ostrander, A. H. Rockwell, L. V. Rogers, F. Shillito, B. A. Shepard, A. E. West—16.

Kent County.—R. Apted, A. J. Baker, E. Bigham, E. Boise, C. W. Brayman, J. D. Brook, A. M. Campbell, B. R. Corbus, J. A. De Vore, W. J. DuBois, E. C. Earle, A. G. Graybiel, J. G. Huizinga, H. J.

Hutchinson, C. H. Johnston, T. M. Koon, F. J. Lee, C. A. Moon, E. W. E. Paterson, L. A. Roller, C. C. Slemmons, Ferris N. Smith, Richard Smith, R. H. Spencer, F. C. Warnshuis, D. Emmett Welsh, A. V. Wenger, Alden Williams—28.

Lapeer County.—J. H. Douglass, G. W. Jones, W. J. Kay, M. B. Causland, H. H. Merriman, D. J. O'Brien, Peter Stewart—7.

Lenawee County.—F. A. Howland, F. J. McCue, C. D. Mercer, R. H. Nelson, O. Whitney—5.

Livingston County.—R. H. Baird, J. E. Cunningham, B. H. Glenn, O. E. Harvey, J. A. Garvah, E. B. Pierce—6.

Macomb County.—V. H. Wolfson—1.

Manistee County.—L. S. Ramsdell, H. D. Robinson—2.

Marquette County.—A. W. Hornbogen, C. F. Moll, H. H. Ptolemy—3.

Mecosta County.—J. McNeece, F. C. Terrill, T. S. Griswold, C. F. Karshner—4.

Midland County.—E. J. Douglas—1.

Monroe County.—R. Brown, A. E. Unger—2.

Montcalm County.—F. R. Blanchard, E. P. Bunce, M. E. Danforth, F. A. Johnson, L. E. Kelsey, W. A. Lee, A. B. Penton, A. Woodburne—8.

Muskegon County.—J. T. Cooper, J. T. Cramer, J. F. Denslow, V. A. Chapman, G. Williams—5.

Oakland County.—E. A. Chapman, E. V. Howlett, Wm. McCarroll, G. W. McKinnon, J. J. Murphy—5.

Ontonagon County.—F. J. Larned—1.

Ottawa County.—A. T. Godfrey, J. Mersen, H. J. Poppen, W. G. Winter—4.

St. Clair County.—J. A. Attridge, J. L. Chester, T. E. De Gurse, R. S. Fraser, A. J. MacKenzie, C. B. Stockwell, G. Waters, W. G. Wight—8.

St. Joseph County.—D. M. Kane, F. C. Kinsey, F. H. Shorts—3.

Saginaw County.—W. B. Clark, E. E. Curts, J. A. Landress, E. M. Ling, R. McGregor, A. R. McKinney, B. B. Rowe, F. W. Ostrander, S. C. J. Ostrom—9.

Sanilac County.—J. A. Fraser—1.

Shiawassee County.—A. L. Bailey, E. J. Carney,

G. Cramer, L. M. Cudworth, J. J. Haviland, A. M. Hume, H. A. Hume, C. McCormick, R. C. Mahaney, W. T. Parker, S. S. Phippen, J. A. Rowley, G. P. Sackrider, F. B. Scott, W. J. Wall, W. E. Ward, F. A. Watts, P. S. Willson—18.

Tuscola County.—F. P. Bender, R. Dixon, W. C. Garvin, G. H. Kaven, A. Seeley—5.

Tri-County.—V. F. Huntley, B. H. McMullen, O. L. Ricker, W. B. Wallace—4.

Van Buren County.—T. C. Penoyar, O. M. Vaughan Jr., G. F. Young—3.

Washtenaw County.—A. M. Barrett, J. F. Breakey, J. G. Cumming, C. G. Darling, Conrad Georg Jr., R. H. Haskill, B. H. Honeywell, T. Klingman, M. Marshall, R. Peterson, W. E. Smith, J. Solis, V. C. Vaughan, J. A. Wessinger, J. T. Woods—15.

Wayne County.—A. W. Abbott, R. C. Andries, J. N. Bell, C. C. Benjamin, A. P. Biddle, A. W. Blain, F. N. Blanchard, C. D. Brooks, G. Brown, W. H. Browne, F. G. Buesser, G. A. Bulson, C. L. Candler, H. R. Carsten, J. H. Carstens, W. J. Cassidy, J. Cleland Jr., R. Connor; F. H. Cole, E. K. Cullen, J. E. Davies, J. H. Dempster, D. O. Donovan, H. A. Freund, G. Frothingham, J. E. Gleason, L. J. Goux, D. M. Griswold, B. D. Harrison, Marry G. Haskins, H. W. Hewitt, L. J. Hirschman, C. Hitchcock, W. H. Hutchings, B. Raymond Hoobler, C. G. Jennings, C. H. Judd, G. Kamperman, W. V. Kennedy, I. B. Kennedy, W. E. Keane, W. E. King, G. L. Kiefer, C. F. Kuhn, W. C. Lawrence, G. M. Livingston, P. J. Livingston, A. D. McAlpine, C. McClelland, A. McKinnon, Angus McLean, W. Manton, J. D. Mathews, E. G. Martin, R. M. Hartin, W. F. Metcalf, S. G. Minor, G. P. Meyers; C. H. Oakman, A. Odell, R. W. Odell, W. R. Parker, H. W. Peirce, I. L. Polozker, G. E. Potter, H. M. Rich, A. L. Richardson, J. M. Robb, F. W. Robbins, B. R. Shurley, C. E. Simpson, H. L. Simpson, Eugene Smith, Eugene Smith Jr., Wesley Taylor, F. B. Tibbals, J. T. Watkins, F. B. Watkins, W. E. Welz, W. A. Wilson; W. J. Wilson Jr., J. W. Vaughan, H. Wellington Yates—83.

GUESTS AND VISITORS.

G. T. Beachler, E. H. Beckman, William Bainbridge, J. B. Bremer, E. W. Corbett, W. H. Cowing, Otto Freer, H. E. Gordon, F. R. Green, Prof. S. M. Gunn, W. Habermas, Lyston, F. W. Marlow, M. M. Portis, C. J. Reilly, L. C. Skinner, P. L. Thompson, J. B. Tyrrell, G. H. Varney—18.

PROPAGANDA FOR REFORM

Assimilation of Calcium Phosphate.—Extensive experiments have demonstrated the availability of calcium phosphate for the bone formation of growing infants. This is further proof of the power of the human organisms to utilize inorganic substances (*Jour. A.M.A.*, Aug. 15, 1914, p. 581).

Pertussis Vaccine.—The Bordet-Gengou bacillus is recognized as the cause of whooping cough and a vaccine prepared from it is used with success, although it is the general experience that when a child is already in the stage of incubation, the vaccine will not prevent the development of the disease (*Jou. A.M.A.*, Aug. 29, 1914, p. 796).

PoDoLax.—A report from the A.M.A. Chemical Laboratory shows that PoDoLax, claimed to be "Podophyllin with the Gripe taken out" is a phenolphthalein nostrum. PoDoLax is being extensively

advertised by the E. E. Sutherland Medicine Company of Paducah, Ky. From the analysis made, it appears that PoDoLax is an aromatized syrup, containing phenolphthalein in suspension and fortified by the addition of an extract of senna. Its laxative action is due chiefly to the phenolphthalein of which each dose contains about 1.8 grain. Podophyllin was not found to be present (*Jour. A.M.A.*, Aug. 15, 1914, p. 595).

Radium in Cancer.—Radium can be used successfully to destroy growths on the surface whose entire extent can be exposed to its energy. Extensive growths involving deep structures and disseminated growths are beyond its control, and there is no reason to believe that they will ever be brought within its control. The effects and the eliminations of radium in the treatment of cancer are the same as those of the Roentgen ray (*Jour. A.M.A.*, Aug. 29, 1914, p. 787).

The Journal

OF THE

Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

PUBLICATION COMMITTEE

Arthur M. Hume, ChairmanOwosso.
A. P. BiddleDetroit.
W. J. KayLapeer.
W. J. DuBoisGrand Rapids.

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Grand Rapids, Mich.

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OCTOBER

Editorials

FORTY-NINTH ANNUAL MEETING.

This meeting is now on record in our official minutes and, were it consistent, we would feel disposed in making editorial comment to be influenced by present day newspaper journalism in reporting the European war, to use an abundance of bold-face, scare-head, "extra edition's" type. Certainly, it was a wonderful, inspiring, profitable and successful meeting, destined to inaugurate a new era in the history of our organization. Filled from the first to the last session with interestingly instructive happenings it is difficult to comment thereon without repeating the entire minutes and the reader is, therefore, referred to the official proceedings published on another page of this issue.

Sufficient credit cannot be given to the profession of Ingham county who, under the able management and leadership of those two indefatigable workers, Samuel Osborne and L. W. Toles, provided so abundantly satisfactorily all those conveniences that were essential for our activities and comforts. As a unit the Ingham profession were ever alert, giving each detail their minute attention. The ample conveniences of the Capitol building were through them placed at our disposal thus making it possible to hold all the several meetings in one building.

Socially nothing was wanting. From one's arrival at the station, where the reception committee met all arrivals and conveyed them to their hotels in automobiles, to the time of our

departure they hospitably strove to increase our pleasure by providing pleasing entertainment for every minute that was not devoted to the several sessions. The smoker of Wednesday evening provided an opportunity that enabled those in attendance to renew old and form new acquaintances. As one passed through the hotel that night and noted the numerous groups of members engaged in repeating reminiscences, "swapping stories" and other forms of social intercourse he was unable to note ought but restful relaxation and happy enjoyment. You "stay-at-homes" cannot realize what you have missed. You must first participate before you can estimate the loss you personally sustained by not attending.

On Thursday afternoon some 250 automobiles were provided for a ride around the city and to points of interest. At six o'clock the President's reception was held and the opportunity was utilized to pay our respects to the retiring President. At seven, that evening, 460 members sat down to a delightful meal that was tendered by the Ingham county profession to all visiting members. This meal disposed of, there was rendered a pleasing program of vaudeville numbers presented by professional artists of first class talent and interspersed by impromptu stories from facetiously talented members. It was an evening that will long be remembered. Accept our hearty thanks again, you doctors of Ingham county, for the joy and entertainment you so cordially provided for us.

We do not wish to intimate that the social features predominated. It may be safely stated that scientifically it has been a long time since our organization experienced such a profitable meeting. Commencing with the first General Session with its President's Annual Address and the discussion thereof by the distinguished discussants, the address on the Origin of Malpractice, Governor Ferris' address, the scientific papers delivered in the section meetings and ending with the last discussor of the last paper, those in attendance were participants of a program equal to that of any national organization. All the essayists were accorded studious attention and were rewarded by active discussions of their papers. All four sections were well attended and it is difficult to state which created the most interest. For the scientific program provided the members are indebted to the section officers who so efficiently provided and arranged the scientific work. The papers and the ensuing discussion will appear in succeeding issues of *The Journal*.

The House of Delegates performed its work expeditiously and the delegates were ever alert to their duties. The minutes of this body and the reports of the standing committees merit your individual perusal.

The attendance was the largest of any meeting held outside of Detroit or Grand Rapids. The total attendance was 489.

Thus was our 1914 meeting. To him who was in attendance it is not necessary to add any more comment. The meeting will exert

comes a formidable confrere. We want to impress you, absentee, that it is vitally essential to attend the meetings of your state and county society regularly. Present events force this necessity upon you. We sincerely hope that your reading of the transactions will cause you



REUBEN PETERSON, M.D.—PRESIDENT, 1914-15.

a lasting influence upon him. It is to you, who failed to attend that we are disposed to state that you have sustained an irretrievable loss by staying at home. Your fellow who attended returned home a better, abler, broader-minded physician. He is possessed of much that you are without and with which he be-

to faithfully resolve to not miss the 1915 meeting that will be held in Grand Rapids.

REUBEN PETERSON, M.D.—PRESIDENT
1914-15.

By the unanimous vote of the total registration of the Lansing meeting Dr. Reuben Peter-

son of Ann Arbor was elected President of our Society for the ensuing year. Trite though the saying may be, it can be safely declared that in doing so we honored the Society for thus has there been selected a man whose every effort has been directed to aid in bringing about all that tended to elevate the standard of Michigan's profession. To him we may also look for an administration that is characteristic of Dr. Peterson—progressive, active, determined, accomplishing those things to which we may always point with pride, surmounting successfully those obstacles that tend to prevent prosperous advancement.

Dr. Peterson was born in Boston on June 29, 1862. He received the degree of Bachelor of Arts from Harvard in 1885. In 1889 he graduated from the medical department of Harvard. He commenced the practice of medicine in Grand Rapids in 1890. In 1898 he removed to Chicago to accept the Professorship of Gynecology and Obstetrics at the Chicago Post-Graduate Medical School. He was made Assistant Clinical Professor of Gynecology and Obstetrics at Rush Medical College in 1900. In 1901 he was appointed Professor of Obstetrics and Gynecology in the University of Michigan. He is a member of the following: American Gynecological Society, Southern Surgical and Gynecological Society, Western Surgical Association. He was president of the Chicago Gynecological Society in 1900 and of the American Gynecological Society in 1911. In 1912 he was appointed as Medical Director of the University Hospital.

The foregoing are but a few of the honors that Dr. Peterson has deservedly won. With such an executive officer we may be justified in stating that the year before us will witness the achievement, to a fuller extent, of all those things for which our organization stands. To him our membership should consign its unreserved support and ever hold itself ready to lend that material co-operation which is so essential to attain a year whose close shall record a series of work well done for the benefit of the profession and the people of our state. May we all pledge him this support.

1914-15 COMMITTEE APPOINTMENTS.

The following committees have been appointed by President Peterson for service and earnest, progressive activity during the coming year. It is respectfully urged that they at once institute an active plan of campaign in order that the greatest good may be attained.

LEGISLATION AND PUBLIC POLICY.

A. M. HUME, Chairman	Owosso
W. H. SAWYER	Hillsdale
H. S. BARTHOLOMEW	Lansing

MEDICAL EDUCATION.

BURT R. SHURLY, Chairman	Detroit
A. M. BARRETT	Ann Arbor

EYE AND EAR EXAMINATION.

W. R. PARKER, Chairman	Detroit
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O. L. RICKER	Cadillac

VENEREAL PROPHYLAXIS.

EDD J. WILE, Chairman	Detroit
W. P. BIDDLE	Detroit
A. E. WEST	Kalamazoo

TUBERCULOSIS.

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A. G. FISHER	Hancock
G. L. DIXON	Wahjamega
J. T. COOPER	Muskegon
A. H. BURLESON	Olivet
A. H. ROCKWELL	Kalamazoo
C. M. WILLIAMS	Alpena

PUBLIC HEALTH EDUCATION.

GUY L. KIEFER, Chairman	Detroit
CLARA DAVIS	Lansing
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A. T. GODFREY	Holland
EDW. GOODWIN	Bay City

TRANSPORTATION.

L. J. HIRSCHMAN, Chairman	Detroit
H. E. RANDALL	Bay City
A. T. ABRAMS	Dollar Bay

MEMBER OF NATIONAL LEGISLATION COUNCIL

A.M.A.

W. H. SAWYER	Hillsdale
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EXHIBITS.

F. J. LEE, Chairman	1917, ..Grand Rapids
J. G. MANWARING	1915, Flint
E. J. DROLETTE	1916,Lansing

Editorial Comments

Personal experience thus far forces the conclusion that the mechanical devices for the maintaining of artificial respiration, such as the pulmotor and the lungmotor are of limited value. The most that has been accomplished thus far is to grant unto the manufacturers considerable free advertising by reason of the publicity that ensues after the emergencies in which they have been employed are reported in the daily press.

To be of value they must be instantly available and put into prompt action. This is at once a difficult condition to overcome. Suspended respiratory or heart action of over five minutes duration causes all hope of resuscitation to practically vanish. Very few of these devices are available in this brief space of time. Consequently in drownings and in electrical shocks—instances in which their value has been greatly exploited—they are of little avail.

Again, their mechanism is such that to successfully operate them they must be operated by trained attendants who are familiar with the anatomy of the air passages and their physiological action as well as with the apparatus. This is another requisite that is difficult to secure in other than medical men and trained hospital attendants—the unadvised comments and opinions of a certain coroner notwithstanding.

The evidence at hands points to but two conditions in which they are likely to prove of value—in gas poisoning and in respiratory failure attendant upon the administration of an anesthetic or in any respiratory failure providing that in all instances there is present heart action or where heart action has not been completely arrested for a period of five minutes or more and sometimes even not then.

These devices, we are inclined to feel, have received undue credit and have not, in our experience, fulfilled the claims made for them. Their value should thus be carefully weighed before a purchase is made.

Now that this country and its inhabitants are by very necessity being caused to realize that we can produce articles of equal value and worth as are those which are “Made in Germany,” and the movement is well advanced to cause the term “Made in America” to imply perfection and quality, we wonder if the profession, or certain members thereof, will not cause an exhibition of sufficient energy to disabuse the public of the exaggerated importance of foreign study. For a number of years it has been conceded that there was no real necessity for one to make a European trip in order that he might pursue a course of post-graduate work. In many instances such a journey has been a mere fad and made for the sole purpose of endeavoring to impress one’s community with unmerited prestige.

We do not refer to those who have actually spent six months or more in real studious pursuits, rather are our comments directed to those who are absent but two or three months and returning announce the fact that they have pursued a course in foreign clinics and hospitals.

We are reliably informed that but little can be accomplished in less than six months. A month or more is usually consumed in getting located and arranging one’s schedules so that his entire day is occupied. To this there must be added a month occupied in travel to and fro, thus giving the “three months man” but little more opportunity than to secure a kaleidoscopic or “Cook’s Touring View” of the clinics, laboratories, amphitheatres, cafes, and points

of interest in England, Germany, Austria and France—all of which is but of little value in increasing one’s professional knowledge or ability.

We feel that the public is aware that many go over more for effect than results and to such we recommend that they spend their time in our American clinics and schools if they are in quest of intellectual food. Of course if foreign travel pleasures are sought for they are of undoubted value but they must not be used to inflict a travesty upon the confidence your clientele imposes in you.

Boston, New York, Philadelphia, Baltimore, Chicago and a few of our other American medical centers are abundantly able to supply one with sufficient material and opportunity to do advance work in any chosen subject. It is ability and not prestige that produces results. The use of, “When I was in Europe” or “During my foreign study” in seeking to make an impression is already of negative value and better omitted.

The necessity of maintaining a more watchful alertness of our coming legislature is advisable. To this end the Committee on Legislation should be accorded our hearty co-operation by rendering unto it that influence that is bound to ensue from the efforts of active county society committees. In such a way may we best secure the enactment of those laws which enhance the value of the public health laws and also thwart those bills which seek to provide legal status for the unscrupulous and preying scorpions of questionable cult classification.

If you have not done so we urge that you carefully read the transactions of our Lansing meeting and the reports of our several committees. As a member, it is your duty to add your support and effort to the activities of our organization and to do so most effectively you must have a knowledge of their nature. There is room for more concerted action—room for more enthusiastic support in behalf of organized medical effort. It must not be left to a few. Contact should be made all along the line. You have no business in the hospital or convalescent’s tent until you have served at the front and received the marks of such active service. The gallery is made only for the “has-been” and we are sure that you do not care to be thus classified. We want you to enter into an active campaign with the other members of your county society this fall.

A DISCUSSION OF WHAT OUGHT TO BE DONE REGARDING THE RIVAL MEDICAL DEPARTMENTS OF ANN ARBOR.*

H. S. BARTHOLOMEW, M.D.
LANSING, MICH.

In an article that appeared in a recent number of this paper a great deal of fault was found with the board of regents of the University of Michigan because of gross mismanagement of medical education in that institution. That the medical students at Ann Arbor are treated unfairly, and that their money and the money of the state is sadly wasted cannot be denied, and moreover it must be acknowledged that the responsibility rests with the regents. In justice to them, however, it should be clearly understood that there is no simple remedy; the situation has developed slowly and is complicated by prejudice, legal technicalities, old customs and personal interests.

But that the task is a difficult one is not a sufficient excuse for the present indifferent toleration. If a reform is to be accomplished it must be begun, and so far as the public is aware no single step has been taken or is contemplated in the direction of greater efficiency and decrease of expense.

The original blunder was made in 1855, only five or six years after the medical department had been established. The legislature of that year passed a law directing the regents to add to the medical faculty at least one professor of homeopathy; this law was foolishly ignored and finally evaded on a technicality. In 1867 the legislature again interfered by attaching a rider to the appropriation bill, which provided a tax of one-twentieth of a mill, making the payment of this money to the regents contingent on compliance with the law of 1855; that is, they still only asked for one additional teacher to teach one additional subject. To this the same sort of opposition developed; the regents tried to evade and get the money by appointing a professor of homeopathy (Hempl) to teach in a school in some place in Michigan other than Ann Arbor, for which they were sarcastically reprimanded by the supreme court (17th Mich., Christianity J.) The controversy continued only a few years more when the University surrendered, and the legislature passed an act which still governs the homeopathic department.

HOMEOPATHY AND THE REGENTS.

This act, which consists of a single brief paragraph, provides only for the payment of the University of \$6,000 a year for the maintenance of a "homeopathic department." It is not mandatory; it is not even directory. Above all, it does not even hint what a homeopathic department ought to be; this was left entirely to the wisdom and discretion of the regents, where it still remains.

Not only were the regents left untrammelled by the legislature in deciding the scope and limits of a homeopathic department, but there was no precedent to guide them; no other university had ever been called upon to maintain rival departments.

It is difficult to understand why the regents did not make a painstaking investigation and ascertain exactly about which of the many medical arts and sciences the two factions were in disagreement, and

separate the students, teachers and facilities only in the pursuit of those studies. Instead, they came to the conclusion that a homeopathic department should consist of a medical college for teaching all the branches usually studied by junior and senior students. This was a very unwise and unfortunate decision, for it has cost the state of Michigan a large sum of money in wasteful duplication, and has deprived many hundreds of medical students of educational advantages that rightfully belonged to them.

Although this is the only law on the statute books having directly to do with the homeopathic department, there is a rider in the law which provides for the fixed income of the University, so worded that it would become automatically repealed and the former law providing a smaller mill-tax reinstated, if the regents discontinued any department of the University.

Aside from these two laws there is no legal restraint upon the regents in carrying out the reforms for which these articles plead. They may go ahead tomorrow and consolidate those branches about which there is no difference of opinion, and still have a homeopathic department. No real friend of the University who takes a broad and tolerant view wants to see any department abolished.

HOW TO BEGIN.

To make a specific recommendation as to how to begin the reform, it is suggested that the regents immediately instruct the faculty of the homeopathic department, that beginning with the coming school year all of their students will be expected to attend the clinics, lectures, and laboratory courses given in the psychopathic hospital.

To understand why this is the easiest and best step to take first, it should be noted that the psychopathic hospital, although used only by the students of the school of medicine and surgery, is not under the control of their faculty and is not legally a part of the University hospital; its relation to the state is similar to that of the other insane asylums and is not therefore governed by the board of regents. It was established ten or twelve years ago for the purpose of increasing the teaching facilities of the University, in which purpose it obviously fails if only part of the medical students have an opportunity to study the fifty or sixty insane patients of its wards.

If the homeopathic students had access to another such asylum it would cancel the charge of gross injustice, which is hereby deliberately made, but it would involve more of just such financial extravagance as we now tolerate in the duplicate departments of obstetrics, surgery and several others. Instead, however, of having a special hospital in which to study the insane with an efficient staff of teachers and laboratory equipment, the homeopathic students are forced to accept as a complete course in psychiatry the lectures of a physician who makes periodical trips from one of the state asylums for that purpose.

Such an initiatory step would involve the minimum of disturbance to the old routine; no resident member of the homeopathic faculty would be ousted. It is difficult to imagine where any opposition to so mild a reform could come from, and the benefit would be obviously important because the students who now are inadequately taught in the diseases of the mind would receive just as good instruction as is given by any institution in America.

To meet this argument, those who make feeble attempts to defend the regents, allege that public opinion is such that they must continue to maintain on the campus the same wasteful injustice, which is altogether absurd and an insult to the intelligence

*Reprinted from the Detroit Saturday Night.

of the people of Michigan. Public opinion does not demand that the regents make special expenditure of money in order to keep part of the medical students out of a state-owned hospital maintained for teaching purposes. In no other university in the world is there such an anomalous conflict between departments; it is a situation which can only exist when nursed by the personal interests which it serves and which is always destroyed when the tax-paying public find out how evil and foolish it is.

OTHER CONSOLIDATIONS.

Only very slightly less forceful are the arguments in favor of the consolidation of the other departments of medicine which are taught in separate hospitals. The state maintains at Ann Arbor, for instance, a separate hospital building for teaching the regional specialties; that is, diseases of the eye, ear, nose and throat. Please note that, although they have only one such hospital, they have two faculties for teaching these branches of medicine, one group of teachers with its following of students using the hospital, and the other group of teachers with its following of students deprived of the use of the hospital. Is it not true that common sense demands that the regents immediately discharge part of these teachers and let all of the medical students have access to the hospital?

The question of which group of teachers, or which individual teachers shall be retained or released, is of such insignificant importance when compared to the principles involved, that this article will avoid all discussion along that line, however much such minor consideration may weigh with the regents; what the public really demands is that the regents let all of the University's medical students use all the state's hospitals at Ann Arbor.

The remarks that apply to the hospital for the regional specialties apply equally well to other hospitals, especially to the hospital for contagious diseases. This hospital was built by the city of Ann Arbor and turned over to the regents to maintain. A fair-minded person would have assumed that the regents would admit students from both schools to its wards, as the public has a right to expect the young men who leave the Ann Arbor University with a degree of doctor of medicine will be taught, at least to the extent of the facilities of the University, how to diagnose and treat such important diseases as diphtheria, scarlet fever, small-pox, measles and the other acute communicable diseases. Contrary, however, to such reasonable expectation, the regents have so arranged it that only students of the school of medicine and surgery are admitted to the contagious disease hospital, and homeopathic students are excluded from its wards. Is this the sort of mismanagement that the regents claim is demanded by public opinion?

RIDICULOUS DUPLICATIONS.

There are two obstetrical clinics which the regents insist upon keeping up; one is small and the other is very small, each having its separate corps of teachers and students laboring in discordant rivalry toward the same goal.

The departments of surgery, diseases of children, diseases of the skin, diseases of the nerves, roentgenology and orthopaedics present the same picture of overlapping waste of money and mis-direction of energy. *It is only in the department of treatment of disease with drugs that there is any logical reason for separation of students and teachers and facilities for teaching.* And it is only in this department that any one has reason to claim that the legislature expected any separation. Michigan legislators are so thrifty that it is safe to assume that

they never intended to enact a law that entailed the squandering of real money to keep up entirely superfluous departments in the University.

To the reader who is not intimately familiar with the situation the question might naturally arise, why is it, that this homeopathic department continues to receive a large number of students notwithstanding the comparatively inferior teaching which they receive? In the answer to this question lies the most important point yet considered; it involves the crux of the whole problem. Is it that the homeopathic system of drug-giving is so popular with the public that young men are willing to put up with an inferior medical education in order to reap the benefits of especial favor from the people? Not at all. The truth is the public has about forgotten (and so has the profession) that there is any essential difference between physicians who graduated from the department of medicine and surgery and those who graduated from the homeopathic department. *Moreover, if the students of both departments, as happens every year, appear before the state board of registration for examination for a license to practice in Michigan, their separate training is ignored and both groups are given the same questions to answer.* No statement on the part of the board of registration, in condemnation of the dual medical departments at Ann Arbor, could possibly be so strong as this silent refusal to recognize any distinction in their graduates.

If after passing the Michigan examination the young men of both departments should go to the examinations for entrance to the medical corps of the United States Army or Navy, or the civil service of any civilized country of the world, no distinction would be made between them; each group would be given the same questions.

CHEAP EDUCATION.

Why then does the homeopathic department continue to attract students? Simply because it is cheap.

Counting from graduation from high school it requires six years to obtain a degree from the department of medicine and surgery and five years from the homeopathic department. This difference in time is equivalent to a money consideration of about \$1,500, counting the expenses of one school year added to the earning of the first year after graduation. This amounts to a tremendous temptation to a boy who comes to Ann Arbor for the purpose of obtaining a degree of doctor of medicine from the University of Michigan. He may or may not realize the advantages of one school over the other in educational facilities, but the money and time advantage is too conspicuous to escape consideration.

However, the regents may coddle themselves with excuses, it is nevertheless true that this great difference in entrance requirements which they tolerate, affects the students and the public just the same as though they offered a bribe of about \$1,500 to induce freshmen to enter the homeopathic department, instead of the department of medicine and surgery.

It is the rule in the University of Michigan, that the entrance requirements of each department, shall be determined by a central board, and this rule is in force for each department except the homeopathic; the departments of dentistry, pharmacy, engineering, and all the others receive their entrance requirement rules from a committee that formulates them uninfluenced by personal interests. Not only is this the rule at Ann Arbor, but it is the general rule in all American universities. *The homeopathic department at Ann Arbor is the only medical depart-*

ment of a university in America that makes its own entrance requirements.

The reason that this difference in preliminary education is made thus prominent is that it is a hindrance to the successful consolidation of the several non-conflicting branches; even in the two first years when both groups of students attend the same lectures and laboratories, the teachers are much inconvenienced because of the difference of preliminary education. It is unfair to expect a student ill-trained in zoology and biology to advance so rapidly in human anatomy as a student who has had good teaching in these subjects; and in physiology a grounding in physics is essential to intelligent study, while the study of physics without preliminary mathematics is a loss of time. A little Latin is essential, and without a knowledge of one or two modern foreign languages the beginning medical student is sadly handicapped.

EQUAL OPPORTUNITY NEEDED.

The essential reform, of course, is to re-arrange the curricula of the two medical departments so that all the students will have access to all the state hospitals at Ann Arbor, and will receive the benefits of the teaching of all teachers of the medical sciences and arts that are connected with the University. Minnesota formerly suffered from nearly the same disgraceful situation but now has an arrangement that is both just and economical. It has but one medical college on the campus; one undivided student body and one harmonious faculty, a certain group of which teaches homeopathy to all students who elect that course. Michigan could follow this plan to the great advantage of everybody concerned, and public opinion would uphold the regents. It would comply with the laws of the state and the laws of common sense and of pedagogical science, and no one with clean hands could offer opposition.

Michigan and Iowa are the only two states that continue giving support to rival medical schools. Canada has no such situation to apologize for, and in all Europe there is no state recognition of a double medical standard. It is undoubtedly the duty of the regents to continue teaching the doctrine of Hahnemann; they are under moral and legal obligations to do so, but they are also morally obliged to give such students a sound and thorough medical education in which they fail utterly, not for lack of means, but from neglect to utilize the means that the people have placed at their disposal.

State News Notes

The State Board of Registration submits for the professions information the following:

Certificates issued to Drugless Healers under the exemption clause of Section 3, Subdivision Third, Act 368, Public Acts of 1913	136
Certificate issued to Drugless Healers through examination	1
Total	137

Certificates refused Drugless Healers under the exemption of Section 3, Subdivision Third, Act 368, Public Acts of 1913:

Applications received too late, or subsequent to October 1, 1913	34
Graduates of cult schools not incorporated	9
Applicants who have taken correspondence courses	64
Application withdrawn	1
Applicants who have not practiced the prescribed time in Michigan, or two years prior to September, 1913	4
Graduates of unrecognized schools	2
Total	115

LIST OF PROSECUTIONS FOR VIOLATIONS OF MEDICAL AND OTHER MICHIGAN STATE ACTS, OCTOBER 1ST, 1913—SEPTEMBER 1ST, 1914.

ANTRIM COUNTY.

Dr. Charles Weaver, Registered Physician, Man-celona.

Charged with violation of the Local Option Law—selling or prescribing liquor illegally. Case pending in Federal Court, Grand Rapids. If convicted, license will be cancelled.

CALHOUN COUNTY.

Dr. Thomas H. Oliver, Registered Physician, Battle Creek.

Convicted of unprofessional conduct—"prescribing or giving away, for other than legal and legitimate therapeutic purposes, certain substances or compounds known as heroin and cocaine, which said substances or compounds contained a drug." Sentenced by the Circuit Court of Calhoun County, February 21, 1914, to ninety days in jail and to pay a fine of \$250. His license was revoked by the Medical Board, June 10, 1914.

CHABLEVOIX COUNTY.

Dr. A. N. Howe, Registered Physician, Boyne Falls.

Convicted in Federal Court, Grand Rapids, June 29, 1914, for "wilfully and unlawfully carrying on the business of retail liquor dealer, by offering for sale distilled spirits in quantities less than five gallons, without having paid the special tax as required by law." Sentenced to pay a fine of \$500, or in default of the payment of such fine, to stand committed to the Detroit House of Correction until fine paid, but not to exceed sixty days. Notice served upon him to appear before Medical Board October next, to show cause why his license should not be cancelled.

A. J. DeLacy, Boyne City.

Arrested in July for practicing medicine without a license. Case pending.

EATON COUNTY.

Dr. E. C. Van DeCar, Registered Physician, Eaton Rapids.

Convicted of writing prescriptions in violation of the Local Option Law, January, 1914. Will be notified to appear before the Medical Board in October next, to show cause why his license should not be cancelled.

The Board has also recently taken up with the Prosecuting Attorney, Emerson H. Boyles, three other possible violations.

GENESEE COUNTY.

Dr. Archibald Peterson, Registered Physician, Flint.
Convicted in Circuit Court, Genesee County, Feb-

ruary 9, 1914, of "aiding or abetting in procuring a criminal abortion." Sentenced to pay a fine of \$500, or to one year in jail. Paid fine. His license was revoked by the Medical Board June 10, 1914.

IONIA COUNTY.

D. R. Schiller, (a traveling Divine Healer, so-called).

Two complaints lodged against him for practicing medicine without a license, to the first of which he pleaded guilty. He was placed on probation for two years (which has not yet expired) on condition of payment of costs, \$100. The second complaint is still standing against him, with the understanding that if he complies with the terms of his probation and discontinues the practice of his so-called profession, it will be dropped. He is now living in Illinois, but not engaged in practice, and is reporting every month to the probation officer of Ionia County.

J. J. Healey, Non-registered Chiropractor, Belding.

Arrested March, 1914, for practicing medicine without a license. Case heard before Judge Davis, Ionia, April 13, 1914, who made an order quashing the information against Healey. Judge Davis was subsequently mandamus to show cause before the Supreme Court. Mandamus granted. Case pending.

Dr. Andrew B. Spinney, Registered Physician, Smyrna.

Notorious advertiser and all-round quack. Upon complaint of Medical Board, his hospital license at Smyrna was cancelled by State Board of Correction and Charities, July, 1914. Subsequently arrested for immoral advertising. Case pending. If convicted, his license will be revoked.

JACKSON COUNTY.

Mrs. Anna Wickwire, Jackson.

Convicted in the Circuit Court of Jackson County, June 11, 1913, for practicing medicine without a license.

KENT COUNTY.

Daniel B. Weaver, Neuropath, Grand Rapids.

Arrested in July for practicing medicine without a license. Case pending.

J. Alton Watson, Neuropath, Grand Rapids.

Arrested in July for practicing medicine without a license. Case pending.

Olaf J. Lofquist, Non-registered Chiropractor, Grand Rapids.

Arrested in July for practicing medicine without a license. Case pending.

J. J. Vouk, "Wonder Doctor," Grand Rapids.

Arrested July, 1914, for practicing medicine without a license. Case sent to Superior Court for trial in September next.

Anthony Van Bysterveldt, Grand Rapids.

Notorious quack, who advertises that he "diagnoses all ailments from small samples of urine." Arrested July, 1914, and case sent to Superior Court for trial in September. Without doubt he will be convicted, and as this will be his third conviction, he will probably be sent to jail without option of fine.

LAPEER COUNTY.

Dr. George M. Wetherell, Registered Physician.

Arrested upon the charge of violation of the Local Option Law—writing prescriptions for liquor without properly diagnosing the case. He left town as soon as the case was nolle prossed.

Dr. Edwin Eaton, Registered Physician, Hudson.

Arrested for violation of Local Option Law—writing prescriptions for liquor without properly diagnosing case. Has since died.

MARQUETTE COUNTY.

Midwife.

Complaint made of practicing medicine. Case Pending.

Bean, Marquette.

Chiropractor. Complaint made of practicing medicine without a license. Is not registered. Case pending.

MONTMORENCY COUNTY.

John T. Ficklin, Atlanta.

Non-registered practitioner. Complaint sworn to by Insurance Department, Lansing. Case pending.

Another case pending in the case of a registered physician charged with fraud.

OSCEOLA COUNTY.

J. D. Lewis, Registered Physician, Evart.

Arrested for writing prescriptions for liquor without making a proper diagnosis. Convicted in Circuit Court, May, 1914, and fined. Will be notified to appear before the Medical Board in October to show cause why his license should not be cancelled.

F. S. Sovereign, Registered Physician, Evart.

Arrested for violation of Local Option Law—writing prescriptions for liquor without making proper diagnosis. Convicted in Osceola Circuit Court May, 1914, and fined. Notice will be served upon him to appear before the Medical Board in October, to show cause why his license should not be revoked.

VAN BUREN COUNTY.

W. J. Croziero, Registered Physician.

Notorious advertising doctor and all-round fake. Arrested at Paw Paw, Michigan, October, 1913, for immoral advertising. Pled guilty. Fined \$50 and left the state. He recently wrote the Secretary of the Michigan State Board of Health for permission to return to this state, and enclosed a large number of original endorsements. His case and credentials were referred to the Secretary of the Board of Registration in Medicine, who is holding the latter for personal delivery. If Croziero should appear in Michigan, notice will be served upon him to appear before the Medical Board to show cause why his license should not be cancelled.

E. J. Southerland, Niles.

Itinerant Chiropractor from South Bend, Indiana. At instance of Secretaries of State Board of Health and Board of Registration in Medicine, Health Officer swore to complaint in July, 1914. Warrant not served, from the fact that the chiropractor was "tipped off" and has failed to return to Michigan. If he should visit this state in the future, the warrant will be served upon him.

WAYNE COUNTY.

James D. Kennedy, Registered Physician, Detroit.
—(K. & K.)

Convicted in Circuit Court, Wayne County, February 4, 1913, which said conviction was affirmed by the Supreme Court of the State of Michigan July 9, 1913, of immoral advertising. Left the state and forfeited bail of \$1,000. Fugitive from justice. His license was cancelled by the Medical Board October 31, 1913.

Charles J. Kennedy, Registered Physician, Detroit.
—(K. & K.)

Convicted in Circuit Court, Wayne County, February 4, 1913, which said conviction was affirmed by the Supreme Court of the State of Michigan July 9, 1913, of immoral advertising. Served three months in House of Correction, Detroit. Has left the State. His certificate of registration was cancelled by Medical Board, January 20, 1914.

Mary Kowalski (Biel), Registered Physician, Detroit.

Convicted in Recorder's Court of the City of Detroit, June 18, 1912, of immoral advertising, which said conviction was affirmed by the Supreme Court of the State of Michigan. Paid fine of \$250. Her license was cancelled by the Medical Board June 10, 1914.

John A. McDowell, Registered Physician, Detroit.

March 25, 1914, convicted in Recorder's Court, Detroit, of violating medical law, by being habitually addicted to the use of morphine and cocaine. Sentenced to five months in House of Correction, without option of fine. License may be revoked in October.

Peter Christianson, Detroit.

March 30, 1914, convicted in Recorder's Court, Detroit, of practicing medicine without a license. Sentenced to six months in House of Correction. Paroled.

W. L. Baker, Registered Physician, Detroit.

June 18, 1914, convicted in Recorder's Court of unprofessional conduct, in prescribing cocaine and heroin for other than legal and legitimate therapeutic purposes. Was informed by the judge his sentence would be three months in House of Correction. Has appealed case to Supreme Court. License will be cancelled when finally convicted.

Dr. Bernislaus Sawieki.

Graduate of Toledo Medical College and licentiate of Ohio (not licensed in Michigan). Convicted in Circuit Court (Judge Van Zile) of practicing without a license. Paroled.

Joseph A. Boland, Detroit.

December 1, 1913, convicted in Recorder's Court of practicing medicine without a license. Sentence, two years. Paroled.

Charles A. Barnes (Nature's Creation), Detroit.

Charged with practicing medicine without a license. Case pending in Recorder's Court.

Harry A. Wickham (Nature's Creation).

(Associated with C. A. Barnes). Charged with practicing medicine without a license. Case pending in Recorder's Court.

Nathaniel Ross, Non-registered Chiropractor, Detroit

Arrested Christmas Eve, under Act No. 191, of the Public Acts of 1899, for maintaining a Medical College contrary to law. Diplomas confiscated. School—Chiropractic—put out of business. Defendant left state and forfeited bail. Fugitive from justice.

E. L. Moore, Chiroprapist, Detroit.

Arrested for using prefix "Dr." to name. No defense. Case dismissed upon promise to obey law.

Three other cases have recently been taken up with Prosecuting Attorney, Detroit, viz.

Mrs. A. E. Mattler, Chiroprapist, using "Dr." illegally.

Anton Carton, Drugless Healer or Masseur, Detroit. Using prefix "Dr." illegally.

Mrs. Markovich, advertising in papers and having

a sign in front of her residence, "Graduated Austro-Hungarian Midwife," etc.

CHIPPEWA COUNTY.

Carl Sunnell, a Finlander, (apparently a "dope fiend.")

Arrested for practicing medicine without a license. After several adjournments and a partial examination he was discharged, with the understanding that he should leave the state. Was confined in jail nearly a month. The evidence against him was not very positive.

James McClurg, Sault Ste. Marie, Mich.—(a "dope fiend").

Arrested for practicing medicine without a license. The case was adjourned for two months on his promising to go to an institution for treatment for the drug habit. If he fulfills his promise the case will be dismissed.

Four cases recently taken up with Prosecuting Attorney of Chippewa County are pending.

Since writing the above another complaint has been received by the Medical Board, against one Reisling, of Detroit, who has been practicing medicine without a license. His case will be taken up with the Prosecuting Attorney at once.

NOTE:

A large number of complaints have been held up through Judge Davis' (Ionia) decision in the Belting case (Chiropractic). Supreme Court decision expected early in October. Attorney General's opinion is that it will be favorable to Board.

The following announcement of removal of their offices to the tenth floor of the Kresge Medical Building in Detroit has been received: Thomas B. Cooley, Diseases of Children; Louis J. Hirschman, Intestinal Surgery and Rectal Diseases; Guy L. Kiefer, Internal Medicine; Rolland Parmeter, Surgery, Gynecology and Obstetrics; H. Rockwell Varney, Dermatology and Syphilis; J. Walter Vaughan, General Surgery; Victor C. Vaughan, Jr., Internal Medicine.

The first sectional conference on Tuberculosis for the states of the Mississippi Valley will be held in St. Louis, Mo., October 6, 7 and 8. This conference is especially for those actively engaged in the crusade against tuberculosis, for secretaries, sanatoria directors, physicians, nurses, open-air school teachers and social workers.

Dr. J. J. Gerkins of Chicago has been employed by the city of Ironwood to act as sanitary engineer at an annual salary of \$2,800. He will conduct water and milk analyses and supervise contagious diseases and general sanitary conditions of the city.

Dr. W. T. Dodge of Big Rapids returned home the last week in September. The Doctor attended the Surgical Congress in London and then spent the remainder of the time in visiting points of interest in Scotland and Ireland.

At the regular meeting of the Medical Staff of Grace Hospital, Detroit, Dr. Carl McClelland was elected secretary for the ensuing year to fill the vacancy caused by the resignation of Dr. L. F. C. Wendt.

Dr. H. A. Hume of Owosso, who was injured by reason of the turning turtle of the automobile in which he was riding on his way to Elgin, Ill., is entirely recovered and resumed his practice.

Dr. C. A. Burrett, a member of the Homeopathic faculty of the State University has resigned and will become the new dean of the Ohio University Homeopathic department.

It is reported that over 40,000 people visited the State Board of Health's car on its recent trip around the state.

Dr. J. B. Griswold of Grand Rapids was elected Vice-Commander of the G.A.R. at the recent national encampment held in Detroit.

Dr. C. E. Boys of Kalamazoo announces that his practice is now limited to Surgery, Gynecology and Obstetrics.

Dr. F. W. Robbins of Detroit announces the removal of his office to the Kresge Medical Building.

Dr. I. B. Hirsberg of Bay City has moved to Montreal where he is to become the resident physician of the Montreal General Hospital.

Dr. Wm. De Kliene of Grand Haven has retired from practice and gone to Ann Arbor where he will take a course in public health work.

Dr. Frank B. Tibbals of Detroit announces the removal of his office to suite 1210-17 Kresge Medical Building.

Dr. Griswold of Big Rapids has been appointed by Governor Ferris as a member of the board of trustees of the Traverse City State Hospital.

Dowagiac will soon have a general hospital as the result of a gift made to the city by Mr. and Mrs. Fred E. Lee.

Dr. Chester H. Doty of Detroit and Miss Clara Laue of Saginaw were married on September 2.

Dr. S. R. Edwards of Calumet and Miss Mabel Wing were married during the early part of August.

Dr. C. W. Ellis of Eaton Rapids has temporarily retired from practice and is pursuing a year of post-graduate work in Ann Arbor.

Dr. R. J. Kirkland announces his re-location in Grand Rapids with offices in the Metz Building.

Dr. J. M. Stone has opened an office in White Cloud.

Dr. I. M. J. Hotvedt has left Muskegon and is now located in Monroe, Wis.

Dr. F. H. Coone of Detroit has located in St. Joseph.

Dr. Charles S. Morley of Detroit has moved to Otsego.

Dr. and Mrs. C. H. Baker of Bay City have returned from a summer's trip in Europe.

Dr. L. E. Baribeau has located in Carson City.

County Society News

ALPENA COUNTY

The monthly meeting of the Alpena County Medical Society was held at the Alpena House Thursday, Aug. 20, followed by a banquet given by Drs. Small and Williams.

The paper of the evening was read by Dean W. Myers, Professor of the Eye, Ear, Nose and Throat in the University of Michigan, Homeopathic Dept., who chose for his subject "Cataracts." The paper particularly emphasized the desirability of removing the lense with capsule, the author stating that by this method the cataract could be removed at any time without waiting for the long ripening process formerly thought necessary. By delivering the lense through the pupil a preliminary iridectomy is avoided, the pupil left round and reacts to light.

Dr. Myers held a clinic for the blind during the day, at which fully a dozen cases of blindness presented themselves. Five of these cases were operated, in two of which he was able to demonstrate his method to removal without iridectomy, capsule intact. One of the cases was an unripe cataract, and the result beautifully demonstrated the practicability of early removal without the long period of blindness formerly thought necessary.

The Alpena Society has been holding regular monthly meetings during the summer, always with a good attendance. The clinics which are held twice a year always prove particularly profitable. The following outside medical men have demonstrated during the past three years at these clinics: Frank Witter, Petoskey; J. C. MacMillan, Don M. Campbell, Angus McLean, Louis Hirschman and A. P. Biddle of Detroit and Dean Myers of Ann Arbor.

The Alpena physicians have secured by an active effort a hospital of about twenty beds. The hospital building itself, donated by Donald McRae, is backed by a hospital association of 100, who have subscribed \$100.00 each for equipment. The hospital will be opened early in the winter.

Dr. James Dunlap of Alpena is recovering from a recent severe illness.

O. BERTRAM, Secretary.

CALHOUN COUNTY

PROGRAM.

CHAMBER OF COMMERCE ROOMS, BATTLE CREEK.

Tuesday Evening, Sept. 1, 1914—8 o'clock.

Regular business session, including balloting on applications for membership.

SCIENTIFIC PROGRAM.

1. Syphilis of the Aorta.

Dr. Robert Bruce Preble, Professor of Medicine, Northern University Medical School.

Discussion. Dr. E. L. Parmeter, Vice-President; Dr. S. R. Eaton.

2. Practical Value and Significance of Blood Pressure.

Dr. C. E. Stewart, Battle Creek Sanitarium.

Discussion. Dr. A. C. McCurdy, Dr. M. A. Mortenson.

Abstract of Address by Dr. Reuben Peterson: "Arguments For and Against Emptying the Uterus in Post Partum Eclampsia."

Study has been made of five hundred cases, published and unpublished, of Caesarean section in women suffering from ante-partum eclampsia. These have been reported by correspondence both at home and abroad.

These five hundred cases represented the work of two hundred and fifty-nine operators; which adds to its value as an operative procedure.

As to maternal mortality, many items enter into the detail of the operation. Especially is it true that the mortality is high if attempts at delivery have been made previously, through the natural passages.

Taking the cases reported between 1908 and 1913, two hundred eighty-three in all, the mortality reached 25.79%, while prior to 1908 the mortality was 47.97%.

With so many operators, so many different conditions leading up to the operation and so many different existing conditions at the time of operation, no fair general average can be found, but it is fair to say that generally it is far safer to perform this operation than attempt the high forceps delivery.

Delay is another factor in the mortality percentage, as with the increasing number of convulsions the danger increases. This applies to the argument of fetal mortality as well.

The mortality percentage can be lowered by improved technic and by exercising greater care in keeping out of the supra-public route.

In this series of five hundred cases convulsions ceased in 54.9% of the cases.

In four hundred seventy-four of the cases 83% were primiparae. The maternal mortality increases with the patient's age. The nearer term the pregnancy the lower the maternal mortality.

While the employment of the older and more tried methods for emptying the uterus in eclamptic conditions where pelvic conditions easily permit it cannot be lightly discarded, the increasing lessened mortality of the Caesarean route must demand serious consideration.

A. S. K.

Dr. R. G. Leland read a most excellent paper at our last meeting on the subject of Hypoepinephry, treating the subject in a very classical manner. As the paper had been previously read before the Kalamazoo Academy of Medi-

cine, and abstracted in *The Bulletin* of that society, and as the paper appears complete in the last issue of the *Journal* of our State Society, it was not thought necessary to print an abstract here at this time.

For more than a year past, the active membership of our Society have felt that more frequent meetings were advisable. Considerable discussion resulted, and led up to the adopting of the amendments to the by-laws whereby our meetings will now occur on the first Tuesday of each month throughout the year, except during the months of July and August, during which time meetings will be suspended.

For the past year we have held meetings every month, except the third month of each quarter; but only four meetings in the year were business sessions, the others having been special scientific meetings at which no business might be transacted. However, this is done away with now, and every meeting will be a regular business meeting, at which time any business of importance may be transacted.

The amendment to the by-laws, as adopted by a large majority at our last meeting, is as follows:

Sections 1 and 2 of Article II were stricken out and the following substituted:

Art. II. Sec. 1. The regular meetings of this Society shall be held on the first Tuesday of each month, except that during the months of July and August of each year meetings shall be suspended, and that such meetings shall be held at such places as shall be decided upon from time to time by the Society.

Sec. 2. The regular meeting held on the first Tuesday of December of each year shall be designated as the Annual Meeting and shall be held in the City of Battle Creek. At this meeting the members shall elect by ballot, a President, a Vice-President, a Secretary-Treasurer, and delegate or delegates to the State Society, who shall respectively be members of the Society, and who shall be elected for a term of one year, and until their respective successors shall have been elected and have qualified.

This arrangement of monthly meetings is a decided step in advance, and we feel places Calhoun County Society in the front rank of the societies of the state. It will no longer be necessary to employ a large part of the time of any meeting in the transaction of routine business. Interesting programs may be provided, and sufficient time allowed for satisfactory discussions.

The Program Committee is pleased to announce that Dr. Geo. W. Crile, of Cleveland, has consented to be present at our next meeting and to address us upon some subject which has not yet been announced. We feel very much gratified at having secured Dr. Crile, and trust the members will bear this in mind and accord him a hearty welcome.

Complying with a request from the National Red Cross Society, presented at our last meeting, the President has appointed the following members as the local committee on Red Cross Medical Work: Dr. Jesse J. Holes, Dr. W. S. Shipp, Dr. Alpheus T. Hafford, together with the President and Secretary of the Society. These will constitute a committee upon which the National Red Cross Society may call to organize and to superintend local relief work, should a sudden emergency arise of great public stress.

At the last meeting of our Society, Dr. A. S. Kimball, Councilor for this district, reported that Dr. Thomas H. Oliver had been served with notice from the State Board of Medical Registration, to appear before the said Board and show cause why his certificate of registration should not be revoked. The meeting occurred on June 10th, and failing to show such cause, the certificate of medical registration of Dr. Oliver was duly revoked. We are creditably informed that this individual has left the borders of the state, after having served a term in our county jail for illegal dispensing of heroin. A fine was also imposed, but remains unpaid.

A. S. KINGSLEY, Secretary.

GENESEE COUNTY

The third quarterly meeting of the Genesee County Medical Society was held July 29 at the summer home of our president, Dr. M. S. Knapp, at Mantauwauka Beach, Long Lake.

The resignation of Dr. R. D. Scott, Secretary of the Society, was read and accepted and a vote of thanks offered for his efficient work while in office. Dr. R. S. Morrish was appointed to fill the unexpired term.

It was also voted that the members of the Society close their offices every Wednesday afternoon during the month of August.

After the business meeting was adjourned a bountiful dinner was served, followed by a dancing program in the evening.

No meetings have been scheduled until after the State Society meeting in Lansing. It is expected that a good percentage of the members will attend this meeting.

RAY S. MORRISH, Secretary.

KALAMAZOO ACADEMY OF MEDICINE PROGRAM.

ACADEMY OF MEDICINE.

Public Library Building.

Tuesday, September 8, 1914. 1:30 P. M.

1. Recent Trip to London.
Dr. A. L. Robinson, Allegan.
2. Resume of a European Trip—Illustrated by Stereopticon. Dr. C. E. Boys, Kalamazoo.
3. Co-operation of the Anti-Tuberculosis Society and the Physician. Mary C. Nelson.
4. Diagnosis and Treatment of Cerebral Hemorrhage. Dr. Sherman Gregg, Kalamazoo.
Discussion by Dr. Frances Barrett, W. F. Hoyt, O. D. Hudnutt.
5. The Importance of Elimination.
Dr. C. E. Doyle, Galesburg.
Discussion by Drs. Alice Ellsworth, G. D. Carnes, N. L. Goodrich.

The last program of the Academy was a great success. If you were not there you not only missed a good program but a good social time and a filling dinner. The program of the day was in the hands of the ladies of the profession. They are to be congratulated. The members and the wives present expressed themselves unanimously that the day's program was of a high type and the day in general

a most pleasant one, made so by the courteous treatment of Mr. and Mrs. Evers.

TWILIGHT ANESTHESIA.

Dr. Bertha Van Hoosen.

The medical profession has manifested an unlimited degree of prejudice against scopolamin and morphine anesthesia in obstetrics and surgery. At one time the *American Medical Journal* would not issue an article upon this subject. Dr. Van Hoosen has used this form of anesthesia in 5000 surgical and obstetrical cases without a death. She gave a report of its use in thirty-three obstetrical cases in her one month's service in Chicago.

Twenty-five were primipara and eight multipara.

One case had twins, forceps delivery in which there was considerable edema.

One case had three convulsions and forceps delivery.

One vomited seven months. Presentation—delivered with forceps.

One case dystocia of recti muscles in which bladder and uterus had forced themselves between recti muscles.

One case of rigid cervix.

Four cases R. O. position.

Results.—All babies living in good condition. One premature but resuscitated.

One baby resuscitated with difficulty but found to be syphilitic.

All nursed their babies and sixteen mothers had more nurse than needed.

One case forty-four years of age, had three children previously and this was the only child she ever had nurse for.

Eight multipara, four had slight after-pains.

Twenty-five primipara, twelve lacerated, four slightly, six had two sutures two had three sutures.

Eight multipara, two had to be repaired previously and were repaired again.

Loss of Blood.—Thirty lost insignificant amount of blood during birth. Three had normal amount.

First stage of labor is one-half as long as under the ordinary routine. Second stage length of time doubled. Dr. Van Hoosen considers this very important.

Administration.—Initial dose one-eighth morphine and one-hundredth grain scopolamin. This produces continuous sleep except that the patient is aroused during contraction of the uterus. At the end of the first and the beginning of the second stage patient is very restless, when one-sixteenth of morphine is usually needed. Scopolamin is administered in one-hundredth grain dose. Fourteen cases had two doses.

Four cases four doses.

Four cases six doses.

Dr. Van Hoosen believes that in morphine scopolamin anesthesia we have made one great step forward in the routine management of obstetrics. That the anesthesia disconnects the memory centers from the motor centers; thus the motor organism performs the act of labor without consciousness of patient.

In the discussion Dr. Butler said in part:

"Twilight Sleep" is the catchy German re-naming of our discarded American method. My experience with morphine-scopolamin anesthesia covers nearly one hundred and fifty cases in the last ten years. An appreciable number of forceps deliveries caused by failing pains with many asphyxiated babies resuscitated only by long-continued artificial respiration caused me to use the method much less fre-

quently. Chloroform and pituitrin applied with intelligence is considered superior. "Twilight Sleep" may be applicable to well-chosen cases. There is a great suspicion that a certain thrifty German chemist has paid an American magazine to create a demand for a product not in any way superior or any more reliable than American manufacture. It is hinted that no one can apply "Twilight Sleep" unless they visit Freiburg and use their special brand of narcotin and scopolamin. This is foolish and certainly is decidedly unethical. Relief of pain is due to the morphine or narcotin and not scopolamin. Scopolamin is used as an adjunct to morphine to suspend the memory of the patient that she may not recall her suffering. This is not so important for the patient but it is indispensable for the physician for if she remembers pain she is useless as an advertisement which seems to be the main object of the disciples of the Freiburg Klinik. Dr. Butler pointed out that the nearly related drugs to the atropine series have a tendency to dry up the lacteal secretion and not to stimulate them, and thus to attribute its increase to morphine-scopolamin is somewhat irrational.

Dr. Crane said in part: He could not believe that Dr. Koenig, who had done so much scientific work upon X-Ray gynecology would denounce the medical profession of America ignorant, or that he would even print an article of this type as printed in the "Ladies World."

The work at Freiburg is of a high character and although unrecognized by the European and American medical profession probably this may put the work upon a scientific basis and later receive universal recognition. He dwelt at length upon the physiological therapeutics of morphine-scopolamin, that morphine was used as an anesthetic before the discovery of chloroform or ether, that scopolamin disconnects the memory centers from the motor centers. The most serious obstacle to overcome would be to individualize the dosage. When once introduced into the body there is no antidote. Thus, if the infant suffers materially from this medication during delivery artificial respiration is the only treatment applicable.

Dr. Boys remarked in part upon, "Statistics of the Results Obtained at Freiburg with the New Twilight."

These statistics are based upon the observation made in a series of 220 consecutive cases of confinement, since the morphine has been replaced by narcophin in this treatment. The histories from which these are taken are very complete, every phase of labor being inquired into, in the eight large pages which go to make up the sheet for other things than the Twilight; this phase of the case record being made up of hourly records written on separate inserts.

Of 220 cases:

88 per cent. had complete amnesia.
10 per cent. had partial amnesia.
2 per cent. had no amnesia.

10 per cent. of cases were operated.

In 100 consecutive cases as reported in Journals where no narcosis was used the operative frequency was found to be 10.5 per cent.

Lacerations.—There were 78 para of whom slight tears occurred in 7.5 per cent.

In 49 para 2 and 18 para 3, there were no lacerations, which compares favorably with 800 spontaneous labors without the Twilight and collected from Journals wherein 13.5 per cent. were lacerated.

The total death rate of 2.15 per cent. compares

favorably with the death rate in Kalamazoo taken from 249 consecutive cases where the mortality was 2.9 per cent. In this relation it must be considered that hospital practice has a larger practice of difficult and normal cases than in private cases.

Treatment of Oligapnoea.—Most of these babies have a characteristic blue-red blush, but no effort is made toward resuscitation. However, it is very important to distinguish between oligapnoea and asphyxia since the latter demands treatment.

The baby is placed on the table and allowed to resuscitate itself. Where no measures were employed it is observed that self-resuscitation resulted in:

Thirty-four cases in five minutes.
Twenty cases in ten minutes.
Four cases in fifteen minutes.
One case in twenty minutes.
One case in twenty-five minutes.

The patient is not exhausted though the labor be most difficult. This can be explained by the fact that only the muscles involved in expulsion have been working. There is conservation of nerve force and bodily muscles not directly involved.

The analogy between "Twilight Sleep" and Anoci Association principle of Crile was explained.

MOTHERS AS SUFFRAGISTS.

Mrs. O. H. Clark, Kalamazoo, Mich.

"Womanliness means only motherhood." It has often been said that the sheltered women make the best mothers. This may be so from a purely physical standpoint, but the mother who recognizes the important part she plays in the development of the character of her children knows that a wide experience with the world outside the four walls is necessary to enable her to be the inspiration to her children that she should be. A love that does not instruct and inspire is not the best love.

We hear mothers of large families say, they are too busy to take an interest in Suffrage. Each child is an added argument for her having a voice in all legislative conditions. She should be awake to all influences affecting the home and state.

The home of today is like a pebble dropped into the water, its circle of influence reaches out until it touches every point of government, good or bad, clean streets, good food, proper recreation, etc.

The terrible tragedy being enacted across the water is the best argument ever advanced for women having a voice in the government. With women voting such a war would be impossible for no mother would vote to send her sons, no wife her husband, into war. Every time a soldier is born, some mother goes down into the valley to bring him into being. She knows the value of a life.

With the poet let us say:

"Lord, give the mothers of the world
More love to do their part;
That love which reaches not alone
The children made by birth their own,
But every childish heart.
Wake in their souls true motherhood,
Which aims at universal good."

A BRIEF ABSTRACT OF "COMMUNITY HYGIENE WITH SPECIAL REFERENCE TO MEAT INSPECTION."

Caroline Bartlett Crane.

Community hygiene depends in no small part upon the behavior of neighboring communities; upon state laws and their administration; upon the national control of the move of persons, animals and things transported from one state into or through another; to the possible injury of public health;

and upon such international regulations as may prevent the introduction into any portion of our country of disease.

Federal Meat Inspection was inaugurated twenty-three years ago, not as a protection to American consumers, but to restore to American packers the enormous and rapidly vanishing foreign trade. "U. S. Inspected and Passed" should be a safe guarantee of the entire wholesomeness of meat, but this is not always true as we all recall the expose of 1906.

But we are necessarily dependent on Federal meat inspection. The remedy is to make inspection a detail of Community Hygiene. There is no advantage from a sanitary or economic view point in shipping cattle a thousand miles or so to a packer to be slaughtered, then shipping the meat back with all the attending loss and deterioration and the increased prices. We want to foster local packing-houses and local stock-yards. We want to build up the stock-raising industry around about our own communities. We must not expect help by getting our meats from Argentina. The great American packers have skimmed the cream off the beef-producing industry in this country, have established themselves early in South America, and today hold the balance of control in those countries and are not going to ship meat to this country to compete with their own prices here, as long as they have a good market for South American meat abroad. We want to cultivate our own stock-raising industry, a commercial as well as sanitary benefit to call our people.

Then we should let the label tell the truth whether upon locally or Federally inspected meat. If there are people willing to eat meat from tuberculous and cancerous carcasses, let them; but let them also know what they are eating by the use of a special stamp or designation which conveys that knowledge. However, let us demand that persons who wish to eat meat, but only if it is from animals free from disease, may have the means of knowing how to obtain such meat.

C. B. FULKERSON, Secretary.

PROGRAM.

ACADEMY OF MEDICINE.

Public Library Building.

There will be a luncheon at 12 noon at the Park-American in honor of Dr. Lewis.

Tuesday, September 22, 1914. 1:30 p. m.

1. A Few Clinics in Vienna.
Dr. R. U. Adams, Kalamazoo.
2. Lantern Slide Views of the following will be given: Dresden, Berlin, Leipzig, Dusseldorf, Freiburg, Heidelberg, Jena, Brussels, Amsterdam and Marken.
Dr. C. E. Boys, Kalamazoo.
3. Report of the House of Delegates with special emphasis upon the Fee-Schedule.
Dr. F. C. Penoyer, South Haven.
4. Relation of Municipal Laboratory and Hospital Sanatorium to the Public and Profession.
Dr. A. H. Rockwell, Kalamazoo.
Discussion by Drs. George I. White and R. G. Cook.
5. Operation on the Cervix Uteri.
Dr. Henry F. Lewis, Chicago.
Discussion by Drs. R. E. Balch, O. H. Clark, O. M. Vaughan, Jr.

RECENT TRIP TO LONDON.

Dr. A. L. Robinson.

London has 192 charity hospitals, each one fully and completely equipped. All courtesies are shown visiting doctors and they follow the cases throughout with the attending man who has complete charge of the patient. In that way the work of about six attending men can be personally followed. Post-mortems are performed on all patients dying in the hospital and at times when visiting physicians can be present, i. e., when clinics are not in progress. Excepting the work done in the cancer hospital the technic is not as good as one would expect it to be.

Patients are required to be in the hospital from twenty to forty hours before operation. Ether is the anesthetic in general use. Spinal anesthesia is also used successfully. Radium is considered a palliative remedy only. X-Rays bring the best results. Heat treatment considered of doubtful value.

Mr. Lane does splendid work although his ideas are considered far-fetched in other parts of England.

RESUME EUROPEAN TRIP.

Dr. C. E. Boys.

Dr. Boys gave a very interesting account of his trip abroad, showing lantern slides of different points of interest both professional and historic, together with points of interest and information regarding the hospitals and noted surgeons. You were, as stated by the speaker, brought face to face with a few of the men you have heard so much about. The doctor took us from New York to Zurich via London, Paris, Louvre and Berne.

THE CO-OPERATION OF THE ANTI-TUBERCULOSIS SOCIETY AND THE PHYSICIAN.

Mary C. Nelson.

The speaker urged co-operation from every physician in this great work; that everybody should be a member of the Anti-Tuberculosis society and work with the slogan, "No tuberculosis in Michigan in 1920." Speakers should visit clubs, granges, schools, etc. and everybody should be taught the meaning of the work and exhorted to aid in every way to exterminate this great plague.

DIAGNOSIS AND TREATMENT OF CEREBRAL HEMORRHAGE.

Dr. Sherman Gregg.

The majority of cases are due to disease of blood vessels which cause thrombosis and embolism and weakening of vessel wall. Rupture of vessel causes hemorrhages and laceration of tissue, arrest of function and irritation to vital parts of cerebrum.

Etiology.—Syphilis, alcoholism, chronic lead poisoning, auto-intoxication, gout, nephritis and old age; may be hereditary.

Lenticulostriate branch of middle cerebral is one most frequently affected. Hemorrhage may also result from diapedesis from vessel especially in hemorrhagic diseases.

The Attack.—Always sudden, coma attended by stertorous breathing, full, slow, tense pulse, marked venous congestion of face, complete relaxation of limbs. The pupils are usually dilated and do not react to light. If coma is continuous edema of lungs and death follow. Tongue is drawn and eye deviates toward paralyzed side. If consciousness returns tendon reflexes are increased on paralyzed side.

Differential Diagnosis.—In uremic coma there is no hemiplegic, pupils are not unequal, coma comes on gradually and is usually preceded by blindness, convulsions and vomiting. Albuminuria and other evidence of nephritis are present. In diabetic coma the acetone breath and analysis are important.

In alcoholism the breath, coma not complete, pupils equal, limbs not hemiplegic and delirium is present.

In opium poisoning the pupils are equal and contracted. Epileptic attacks have aura preceding, pupils equal and dilated, tongue frequently bitten and muscles are in state of convulsion, consciousness return rapidly. In hysteria areas of anesthetics should be sought for.

Embolism usually occurs before 40 and is associated with heart disease, rheumatism, syphilis, or during the puerperium. The pulse and heart action are weak. Paralysis comes on gradually, is less complete, and less widely distributed.

Prognosis.—More fatal than embolism or thrombosis. The older the patient the less are the chances for recovery. Bi-lateral paralysis accompanied by cranial nerve palsies means a lesion in the pons and is nearly always fatal.

Treatment.—Patients with beginning symptoms of endarteritis should lead "the simple life." Alcohol, strong coffee and tobacco should be used in moderation if at all.

Treatment of Attack.—Should not be normal until consciousness has returned. Place patient with head elevated and ergot be given or venesection done. No food may be given while in comatose stage. After recovery from attack faradization of muscles is beneficial. Where no differential diagnosis can be made use no active means of treatment for either condition. Surgery offers no help or relief.

KENT COUNTY

A special meeting of the Kent County Medical Society was held Saturday, Sept. 12, 1914, at eight o'clock, when Dr. William S. Bainbridge of New York City presented a paper, illustrated with lantern slides, entitled, "The Thyroid Gland, Hyperthyroidism, Hypothyroidism and Dysthyroidism."

At nine a. m., Sept. 12, Dr. Bainbridge held a surgical clinic at the U. B. A. Hospital, Grand Rapids.

MARQUETTE-ALGER COUNTY

A meeting of the Marquette-Alger County Medical Society was held in Ishpeming August 6. A paper on "Operation for Gall Stones during Pregnancy" was read by Doctor R. A. Burke, of Diorite. He gave a history of such cases occurring in his practice. The Secretary read a paper upon the several problems confronting the County Medical Society. A resolution was adopted declaring the schedule of medical fees connected with the Workman's Compensation Act to be inadequate and unjust, and that we use our influence to have them reconsidered.

T. A. FELCH, Secretary.

UPPER PENINSULA MEDICAL SOCIETY

Resolved that the thanks of this society be extended to the Houghton Club for its hospitality and to the Rev. Knowles for his kindness in opening our meeting with an invocation; to Prof. Doelle for his excellent address of welcome and to the medical

fraternity of Houghton County for its generous and whole souled entertainment.

That this society protest against the cut rate fees which interested parties are trying to impose upon the medical profession in connection with medical and surgical services rendered to injured persons coming under the operation of the compensation act of Michigan. We protest all the more forcibly against the establishment of these cut rates because it is a move promoted by insurance companies whose sole object seems to be to realize all the profit possible out of the business, regardless of the interests of suffering humanity. In other words, we consider their profits derived from this kind of economy, but another name for blood money.

Whereas, a stitch in time saves nine and prevention of epidemics is far cheaper than their extinction and whereas it is a proven fact that the liberal use of antitoxin as a preventive as well as a curative agent against diphtheria is the most economical method for tax payer as well as the most humane and effective for the benefit of the sick. Resolved, that we recommend that all municipalities furnish free antitoxin to all persons sick with diphtheria and to all persons who have been exposed to the danger of contracting diphtheria. This recommendation we make in the name of duty to humanity and in the true interests of the tax payer.

We condemn "Lodge Contract Practice" at cut rates as in actually in existence in several localities of the upper peninsula. As a remedy we suggest that physicians guilty of this offense be barred from membership in our respective county societies and that they be not recognized as persons, whom a self-respecting and honest physician should meet professionally.

ARTHUR F. FISHER.
WILLIAM ELLIOTT.
J. E. SCALLON.

Book Reviews

A TREATISE ON DISEASES OF THE NOSE, THROAT AND EAR. By William Lincoln Ballenger, M.D., Professor of Laryngology, Rhinology and Otology in the College of Physicians and Surgeons, Chicago. New (4th) edition, thoroughly revised. Octavo, 1080 pages, with 536 engravings, mostly original, and 33 plates. Cloth, \$5.50 net. Lee & Febiger, Philadelphia and New York, 1914.

Four large editions in six years is a record of very unusual achievement. An examination of the contents of this work will disclose the reasons for its enviable reputation among students, physicians and specialists. Every line of the text and every one of the five hundred and thirty-six illustrations bear evidence to the enormous amount of work, care, and expenditure bestowed upon this book by both author and publishers. In this respect it is almost unique in medical literature. In this new edition the important feature will be found in its chapters on the Labyrinth, the new matter on which amounts to over one hundred pages. Great labor has been bestowed in marshalling the facts and formulating them for teaching purposes. Thirteen original colored plates now illustrate the physiological and pathological manifestations of nystagmus. A careful study of these alone will suffice to convey a clear idea of the subject. Twelve drawings illustrate the Newmann and the Hinsberg labyrinth operations. Among other new matters may be mentioned the full description of Mosher's fronto-ethmoid oper-

ation, with five drawings, showing each step. Moshier's technic is a distinct advance in the surgery of sinuses. Autogenous vaccines in the treatment of hay fever are given place, though this remedy has not yet fully proved its value. The section on Functional Tests of Hearing has been rewritten. Otosclerosis has been extensively revised and brought fully to date. Haynes' Vaccine therapy has been revised, and the His Leukocyte-extract therapy is given in detail. It forms a distinct advance in the treatment of certain forms of infectious diseases, especially of the nasal sinuses and meninges. Meningitis has been largely rewritten, with much new material. The section on Abscess of the Brain has been revised by Dr. Howard Charles Ballenger. The use of salvarsan in the treatment of syphilis of the brain and auditory nerve is described with great fulness. It forms an important addition to this edition. Dr. George McBeam's theory of the causation of paracismus Willisii is given in full. In a word, every line of the book has been revised, all obsolete matter has been eliminated, and much new text has been incorporated, with many new illustrations and plates, all of which were drawn by the author. The volume is one hundred pages larger than the previous edition and there are about thirty more illustrations in the text as well as eleven new plates.

DIETETICS: OR FOOD IN HEALTH AND DISEASE. By William Tibbles, LL.D., M.D., L.R.C.P., M.R.C.S., L.S.A. Medical Officer of Health, Fellow of the Royal Institute of Public Health, etc. Octavo, 627 pages. Cloth, \$4.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

The skilful dietitian has at his command the best of all therapeutic agents. There is no doubt that the value of the diet is generally very much underestimated and that remarkable results can and are being achieved every day by this very easy method. Dietetics is not only a part of therapeutics but also of preventive medicine, and it advances equally with them. In Dr. Tibble's new work the most recent acquisitions to our knowledge of dietetics are placed before the profession, and they are of great interest and importance. The study during the last few years of the enzymes and their striking specificity, of the lipoids, of the salts, of the insufficiency of certain proteins, and of the vitamins is epoch-making, and has caused a corresponding advance in dietetics. These discoveries are so important as to raise the question whether nutritive failure or success does not depend as much on these "accessory bodies" as on the primary elements of the diet. All these new and interesting studies and their applications the author has presented in delightfully clear and easy style, so that they may be readily assimilated by those who have not made a special study of this subject. His power of discernment, his common-sense, and his wealth of information are reflected on every page.

Without a working knowledge of the present day principles of dietetics one cannot hope to treat disease as efficaciously as does he who is possessed of such knowledge. This is a volume by the study of which the practitioner will be able to acquire the necessary fundamentals. Technical at times, but not overly so; practical always. It certainly is a work that is bound to be of great help to every physician. It is a most welcome addition to our list of text books.

BLOOD PRESSURE: ITS CLINICAL APPLICATIONS. By George W. Norris, A.B., M.D., Assistant Professor of Medicine in the University of Pennsylvania; Visiting Physician to the Pennsylvania Hospital;

Assistant Visiting Physician to the University Hospital; Fellow of the College of Physicians of Philadelphia. Octavo, 372 pages, with 98 engravings and one colored plate. Cloth, \$3.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

The importance of blood-pressure in diagnosis, prognosis and treatment is becoming more widely recognized every day, and with this recognition has come the creation of a literature devoted to this special field. The latest contribution to this literature is that of Dr. Norris. He has presented his subject in condensed and practical form, and as definitely as the present state of our knowledge permits. Both the experimental and clinical data which have been available have been included, for it is the combination of these two that the physician must rely upon when handling cases. The author's method of discussing each part of the subject is such that his book is a well balanced presentation of the latest scientific information regarding blood-pressure and its clinical applications. It is probably the most complete and authoritative work in English on this new and extremely important topic. The illustrations are well chosen and help to an easy understanding of the text.

This is one of the most practical works we have seen upon the subject. It is one that is bound to enable the student and practitioner to secure more reliable interpretations of his pressure readings.

A MANUAL OF DISEASES OF THE NOSE AND THROAT. By Cornelius G. Coakley, M.D., Clinical Professor of Laryngology in the College of Physicians and Surgeons, Columbia University, New York. New (5th) edition. 12mo, 615 pages, with 139 engravings and seven colored plates. Cloth, \$2.75 net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

This work has long been recognized as one of the most practical and useful manuals of Laryngology in the English language. It touches upon the pathology, simplifies and abbreviates the diagnosis, and emphasizes those methods of treatment which are most practical. Its statements are brief and clear, and its illustrations convey valuable supplementary information. This book gives quickly and easily the practical working points indispensable in the every-day routine of the busy physician. Its teaching quality, as well as its simplicity, are among its attractions, for it is a favorite text for undergraduate students. With the publication of this new edition, the fifth, Coakley's Laryngology is again before the profession in revised form.

It forms probably the best text book exposition of this subject for the busy general practitioner. A most practical book.

PROGRESSIVE MEDICINE. Vol XVI. No. 3. A quarterly digest of advances, discoveries and improvements in the medical and surgical sciences. Edited by Hobart A. Hare, M.D. September, 1914. Lea & Febiger, Philadelphia. Price \$6.00 per year.

This number contains the following: Diseases of the Thorax and Its Viscera, including the Heart, Lungs and Blood-vessels, by W. Ewart; Dermatology and Syphilis, by Wm. S. Gotthric; Obstetrics, by Edward P. Davis; Diseases of the Nervous System by Wm. G. Spiller.

Filled from cover to cover with comments upon the literature of the past three months whereby one is able to select the good, the useful from the numerous articles that appear from month to month. An essential publication of undoubted value and aid to the progressive physician.

COLLECTED PAPERS FROM THE RESEARCH LABORATORY of Park, Davis & Co. Detroit. Volume 2, 1914.

A valuable compilation of the writings of those connected with the above laboratory. A reproduction of papers published in various journals.

DISEASES OF THE SKIN, INCLUDING THE ACUTE ERUPTIVE FEVERS. By Frank Crozer Knowles, M.D., Instructor in Dermatology in the University of Pennsylvania; Clinical Professor of Dermatology, Women's Medical College of Pennsylvania; Fellow of the College of Physicians of Philadelphia, etc. Octavo, 546 pages, with 199 engravings and 14 plates. Cloth \$4.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

Probably the most striking feature of this new work is its splendid series of large and clear illustrations, nearly all of which are original, and most of which are photographs of the author's own cases. For its illustrations alone, the book should have a place in the library of every doctor who treats dermal affections. The work is unusually complete in that it covers every eruption of the skin and contiguous mucous membranes, and includes not only the ex-anthemata but also the acute eruptive fevers that are constantly or occasionally accompanied by a cutaneous outbreak. Every practical point in treatment is emphasized, and nothing is left to guesswork or is written in mere outline, as is too often the case in dermatological books. The treatment is given as if the author were giving full instructions to a patient in the office, which kind of presentation is most helpful to the student or practitioner. The sections on diagnosis are just as carefully constructed, and in addition valuable aid for purposes of differentiation will be found in the illustrations. It is difficult to see how the careful reader of this work could fail to obtain uniformly good results in the practice of cutaneous medicine.

This volume serves admirably as a guide to student and practitioner. To him who desires, it may be used to refresh one's memory on cutaneous eruptions. Another commendable feature is that under treatment the author has not published a list of formulas and left it for the reader to select what appeals to him. On the contrary the author recommends those remedies which he has successfully used and how he has used them, thus imparting what we are looking for—information as to what is best in this or that skin lesion. Our pronouncement is—a most useful book for every practitioner.

LOCAL ANESTHESIA: ITS SCIENTIFIC BASIS AND PRACTICAL USE. By Professor Dr. Heinrich Braun, Obermedizinalrat and Director of the Kgl. Hospital at Zwickau, Germany. Translated and edited by Percy Shields, M.D., A.C.S., Cincinnati, Ohio, from the third revised German edition. Octavo, 399 pages, with 215 illustrations in black and colors. Cloth, \$4.25, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

Braun is, without question, the world's greatest authority on local anesthesia, and it is his work, especially in the perfection of technic, which has made possible the successful use of local anesthetics in general surgery and the surgical specialties. In this book the vague, erratic and unsatisfactory efforts which have been made in this field for many years are systematized, and a logical procedure, based upon scientific facts and having an exact and undeviating technic, is offered. The development of the various local anesthetic methods is demonstrated objectively, so that the reader will be able to make practical use of local anesthesia. This has been accomplished by descriptions of many operations performed under

local anesthesia, with the aid of numerous illustrations, many of which are photographs taken during these operations. There is no doubt that brilliant results are being obtained almost daily with infiltration and conduction anesthesia, and the use of general anesthetics is being correspondingly reduced. Leaving the many other advantages of local anesthesia out of consideration, the total absence of mortality and injury to the tissues should give it a permanent and important place in surgery. Up to the present time the various surgical text-books have given but little attention to local anesthesia, and the monographs have concerned themselves with special and individual methods. This work, therefore, may be regarded as the first and only one of high authority which covers the whole subject completely and places the entire present knowledge thereof at the disposal of the profession. In the portion of the book dealing with the specialties the author has been aided by specialists in their respective fields. The illustrations are numerous, many are in colors, and many have been drawn by Professor Braun himself.

No surgeon should permit himself to be without this work. No practitioner should neglect securing it. It is of inestimable value to both. We cannot recommend it too highly. It is essential that every physician should own this valuable contribution to our reference work.

A MANUAL OF PRACTICAL HYGIENE. For Students, Physicians and Health Officers. By Charles Harrington, M.D., late Professor of Hygiene in the Medical School of Harvard University. Fifth edition, revised and enlarged by Mark W. Richardson, M.D., Secretary to the State Board of Health of Massachusetts, in collaboration with the following officials connected with the Massachusetts State Board of Health; W. H. Clark, Chief Chemist, X. H. Goodnough, Chief Engineer; William C. Hanson, M.D., Assistant to the Secretary; Hermann C. Lythgoe, Chief Analyst of Food and Drug Department, and George H. Martin, formerly Secretary to the Massachusetts State Board of Education. Octavo, 933 pages, with 125 engravings and 24 plates in colors and monochrome. Cloth, \$5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

The ever increasing importance and the broadening scope of Hygiene are going hand in hand with the great strides which are constantly being made in our knowledge of the subjects concerned with preventive medicine. It is no longer possible for one man to have first-hand knowledge of all parts of this vast field. To the end therefore that Harrington's Hygiene, in its new edition, might offer the latest information of high authority on every phase of its department, the editor has secured the collaboration of the experts associated with him in the work of the Massachusetts State Board of Health. This latest edition, therefore, is thoroughly representative, and to the smallest details, of this Board which has long been noted for the high character of its laboratory investigations and its public health administration. Many of the chapters have been practically rewritten and in each case this has been done by a gentleman who has made a specialty of the topic under discussion. The revision has been extremely thorough throughout, and the new edition contains one hundred pages more than the previous one, as well as twelve additional plates.

It may be safely stated that the work meets the requirements of all interested in the preservation of health and therefore is worthy of our readers' considerate investigation and purchase.

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SUGGESTIONS AS TO THE ORIGIN AND REMEDY OF MALPRACTICE ACTIONS.*

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It may be well to briefly outline the early history and development of the rules of practice and evidence governing malpractice cases. It would be useless for me to attempt to point out the development of the science with which you gentlemen are so much more familiar except for the purpose stated, and I hope that you will understand that in this brief historical summary I am not presuming that any of you are ignorant of the facts set forth. I am only stating them to trace the legal development.

If my memory serves me correctly Aesculapius was one of the first men to become famous for his skill in surgery and medicine, and an order grew up known as the priests of Aesculapius, but these priests were not surgeons in the sense we speak of surgeons today. In many instances they depended solely upon the dreams of the patient to indicate the treatment. The poet Homer described in his poems a recognized profession and a course of treatment which must have been the relating of experiments covering a considerable period.

The first really great exponent of medicine was Hippocrates, and the practices of the modern surgeon date from that period. As you all know, he was styled the Father of Medicine and many schools of medicine were established by his descendants. This marked the beginning of the separation of the religious and scientific treatment. The new medical school taught the student to study the symptoms of the patients, and to make a record of what he observed for use in similar cases.

From that time the advance of medical science has been rapid but not until the last century did it reach the high water mark. During this

same period there was an advance in the intelligence of the people generally, and a greater demand was made on physicians and surgeons.

The first liability of physicians of which we hear was of the priest class to the Almighty, but there was no liability to the patient for any malpractice. In Egypt, the physician was only compelled to follow written instructions which had been handed down from early times, and there was no liability if these precepts were followed, but if they did not follow the written orders, and a cure was not effected, the doctor might be put to death. In India, those practicing medicine, were only responsible to the ruler for their acts and not to the patient. In Greece, the practitioners were made responsible in a slight degree to their patients if they erred in the treatment of the case.

With the advancement of society, and the advance of learning of physicians and surgeons, there came a corresponding advancement of the use of this skill and learning, and a liability to the patient for the failure of a doctor to use that skill and learning. In fact, at one time, the law made the physician a warrantor of cures. In other words, at first there was no right given the physician to exercise judgment or individuality in the treatment of disease, but finally, after the code of Justinian, there was a provision holding the physician liable only for the failure to use skill, or neglecting the patient. From this code our courts, perhaps, derived their original ideas concerning malpractice actions, as the English law drew largely from Roman law in the development of its rules regarding negligence cases, and our law of this, as well as many other subjects, came from English law.

Thus we see that from very early times your profession was to a certain extent regulated by law. In England, at one time the apothecaries became the general practitioners although at a much earlier period than this the monks had had control of the medical practice. The Council of Tours in 1163 decreed that no clergyman or monk could undertake a bloody operation but they still could prescribe medicine. At this time the practice of surgery was taken up almost exclusively by the barbers whose shops were

*Read at General Session of 49th Annual Meeting of the Michigan State Medical Society held in Lansing Sept. 10, 11, 1914.

marked then as now, by a striped pole, but in those days a basin was also shown. The stripes around the pole indicated in early days the ribbon for bandaging the bleeding arm and the vessel to receive the blood. It was not until 1745 that the barbers were entirely ousted from the practice of surgery.

In England, the physician was very early held responsible for negligence in the treatment of his patient and the rules varied in different courts. Some judges adopted a rule calling for the highest care and skill while others adopted our present rule of ordinary care and skill. As might be expected, some of the rules adopted in England were taken up in this country and at first it was held that a physician must possess the same degree of skill as those thoroughly educated in his profession ordinarily employed. This harsh rule was later abrogated, and the more liberal one adopted, that a physician is not a warrantor of cures, and that he must only possess the skill and knowledge which is ordinarily possessed and used by physicians and surgeons practicing in similar communities. There can be no doubt of the wisdom of this rule, for through it the physician and surgeon has been allowed to follow his own best judgment, and develop new treatments of diseases and new methods of surgery, which they would not have had the temerity to undertake, under the old rule.

As Ex-President Taft once said, as Judge of the Federal Court:

"A physician is not a warrantor of cures. If the maxim *res ipsa loquitur* were applicable and a failure to cure were held to be evidence however slight of negligence on the part of the physician or surgeon causing the bad result, few would be courageous enough to practice the healing art, for they would have to assume financial liability for nearly all ills that flesh is heir to. If apart from the fact of death there is no liability and that is the conclusion in this case, that fact does not create it."

We now come to the origin of malpractice actions as we encounter them at present. It is impossible for me to state with certainty how these actions originate, but from my experience in defending them, several suggestions have been forced upon me with considerable certainty. And, judging from these observations I would say that an apparent jealousy, or it may be perhaps a lack of good feeling among physicians, is largely responsible for the number of malpractice cases that arise. Another originating cause is the actual or implied criticism of the treatment or operation of one doctor by another. It is only necessary for a doctor who is examining the work of another physician to say with a shrug of his shoulders or a lift of his eyebrows, "What doctor attended you, or treated you?" and if the patient imagines the operation or treatment has not been entirely satisfactory she or he is very apt to state to some one else,

that Doctor—— who examined her, was very much surprised at the treatment Doctor —— administered. The next step is to consult a lawyer and a suit for malpractice frequently follows.

It has come to my knowledge that doctors frequently do more than show by their manner a disapproval of what some other doctor has done, but actually criticize the treatment or operation. And again the attempt of a doctor to collect his bill for services sometimes originates an action of malpractice.

Doubtless many of you have thought that a lawyer taking such a case is a blackmailer as well as the patient bringing the action, but I wonder how many of you have stopped to think that in practically every case the patient or the lawyer has talked with some doctor and obtained his consent to testify at the trial before starting the suit. This precaution the lawyer must take, for without the testimony of some medical man or expert it is impossible to have the case submitted to the jury, as the rule is well established in this and most of the other states, that unless some physician offers testimony showing malpractice, it becomes the duty of the judge to direct a verdict for the physician.

The law on this subject has been well stated by the leading case in this state of *Farrel vs. Haze*, where the Court held that the following request of the attorney for the doctor should have been given:

"The question whether the loss of patient's foot was attributable to anything that the patient claims the defendant did or omitted to do is a scientific question which the jury cannot determine for itself, and can only be answered by an expert; and inasmuch as no expert or medical man or surgeon has said that the loss of the foot, in his opinion, came from anything the defendant did or omitted to do, therefore I charge you that you cannot take the loss of the foot into consideration in this case or hold the defendant liable therefor."

In other words, the doctrine of *res ipsa loquitur* does not apply, or more plainly stated, the failure to cure or even improve the patient is not in itself any evidence of negligence on the part of the physician, and the only way it can become so is for some member of your profession to testify that what another member did was improperly done either in whole or in part.

To illustrate what I mean I propose taking up several recent cases in this state, and show that the origin and successful prosecution of malpractice cases results wholly from the action of some member of your own profession.

A very interesting case was decided by our Supreme Court on March 26, 1914, wherein Emma Dailey brought suit against Dr. John R. Shaffer and recovered a verdict for \$2,000. The facts briefly were these:

The husband of the plaintiff was shot through

the thick part of the calf of his right leg leaving a hole large enough to insert two fingers. Dr. Shaffer was called and took charge of the case. The wound was cleansed and some foreign matter removed, antiseptic gauze was inserted and the leg was bandaged. Strychnine tablets were given the patient who was suffering from shock. After giving members of the family some instructions as to treatment to be followed when the doctor was away, he left and returned at three o'clock in the afternoon. The patient was somewhat improved. At the outset the doctor did not probe into the wound to find out whether the arteries had been severed or punctured for fear the patient would die from shock, and on the occasion of his visit in the afternoon the doctor found that the wound was not bleeding and he left after giving some instructions to the family.

During the evening the family and some neighbors who were in, thought the wound was bleeding too freely and telephoned several times to the doctor but could not get him, and even though the home of the patient was less than a mile from that of the doctor, not one of the neighbors or family went for him.

Two physicians testified to making a post-mortem examination and they declared that the posterior tibial artery was cut off and the popliteal artery was partially divided and they said that in their opinion the patient died from arterial hemorrhage. The doctor was charged with negligence in not ligating the severed and injured artery, and the defense was that the treatment was proper under the circumstances, as the patient was suffering from shock and, had a thorough examination been made at that time, he would have died from shock. The attorneys for the defendant further claimed that the case came within a class known as "emergency cases" wherein if a physician exercises his best judgment as to the treatment, he is not liable for negligence, or an error of judgment, and this is undoubtedly the rule as laid down in the recent case of *Luka vs. Lowrie*, reported in 171 Mich. The reason for this rule is perfectly apparent, as physicians and surgeons must frequently act very quickly in emergency cases.

Now, in the opinion of the writer all first aid cases are strictly speaking, "emergency cases" and certainly in the instant case, Dr. Shaffer was called on only to exercise his best judgment after he found the patient almost dead from shock and suffering from a large wound.

However, our Supreme Court sustained the verdict and held, apparently, that this case did not come under the emergency rule because the doctor had not probed the wound to find out whether an artery had been severed or punctured. But it must be remembered in this connection, that the judgment of Dr. Schaffer himself was that to have done this would have pro-

duced instant death as the patient was suffering from shock then. The Court seemed of the opinion that if Dr. Shaffer had probed the wound and found the artery severed then it would have been an emergency case to know whether or not he should attempt to ligate them. We feel that the Court unconsciously erred and was misled by some statements made in the brief of counsel for the plaintiff and we are hopeful that a re-hearing will be granted, for it is the opinion of the members of the Wayne County Society at least, that such a rule would seriously hinder doctors in their work and result disastrously to patients in emergency cases.

Now, I wish to call your attention to the part that the doctors themselves played in this case. Three persons—Drs. Wm. H. Gale, Benj. F. Horner and Walter A. Scott, took the stand for the plaintiff and testified that in their opinion the treatment of Dr. Schaffer was in some respects improper. They tried, apparently, to salve their remarks by saying that in some ways the treatment was proper. I would like to take the time to read you the hypothetical question which was asked these doctors, but my time is too brief or the question too long, and I believe you would all agree with me that the meaning was not clear enough to warrant any doctor in testifying to proper or improper treatment, and yet it was solely due to the testimony of these doctors that the case was submitted to the jury.

Now I have no intention of discussing or commenting upon the sincerity of the doctors who testified, but in my opinion, and from talking to some of the best surgeons in Detroit, it does not seem to me that any one who did not see the wound at the time, and did not know the condition of the patient, could say that the treatment was wrong. As I have said, these conclusions of mine have been formed after talking with some of the most eminent surgeons in this state who say they would not have attempted to judge whether the treatment was proper or improper, not knowing fully the condition of the patient as Dr. Schaffer did.

The record shows that the attorney took forty minutes in stating the hypothetical question to the three doctors who testified that the treatment was improper.

This case is an illustration of what I have said—that a doctor's conviction depends entirely upon the testimony of other members of his profession.

Another case recently decided illustrating the same thing is that of *Duffy vs. Dr. John Charters*. The plaintiff suffered from an oblique fracture of the left clavicle. Plaintiff claimed that the fracture was not properly reduced, and that there had been a shortening of the bone and the use of the arm greatly impaired. The jury brought in a verdict of \$1,080.00.

The plaintiff testified himself that all the

doctor did when he came to the house was to pick up his arm and place it diagonally across plaintiff's breast so that the point of the fingers of the left hand were against the lower part of the right shoulder above the arm pit, and below the top of the shoulder. That thereupon he applied bandages, which the defendant claimed was done in the improved method known as Sayres' dressing.

After these facts were introduced, a hypothetical question was then asked of Dr. Shaver to which question the doctor answered that in his opinion the treatment was not proper. The Court said:

"The testimony of the experts (that is the doctors who testified against the defendant) being based on the testimony of plaintiff's witnessess, it was proper to have their answers stand."

Of course, the attorney knew in advance the answer Dr. Shaver would make when he propounded the question and if he had been unable to find any doctor to take the stand and testify that the treatment was improper, the suit would never have been started or tried, which again illustrates the fact that the remedy rests solely with the medical profession.

Another very recent case, perhaps, illustrates the principle better than any of these. This case has not been decided by the Supreme Court but is now before it for decision.

An action was brought by Edward Wilk against Dr. Benj. E. Black. The plaintiff was 22 years old and was thrown from a horse sustaining a green stick fracture of the ulna and radius of the left forearm. Plaintiff was brought to the office of the defendant who reduced the fracture in the usual manner, the arm being pulled and manipulated until the bones were straight, and in proper position, then absorbent cotton, splints and bandages were securely applied and arm put into a sling. Plaintiff returned the following Monday and the defendant examined the arm without taking off the splints and found no indications of trouble. The plaintiff returned on November 2nd, at which time the splints were removed, the arm examined and found to be perfect, the bones being straight and in normal condition. Single splints were put on now and the arm re-bandaged, and plaintiff told to come back in two weeks to have the splints taken off. The doctor testified that he told the boy to come back in two weeks and the boy said that it was such a long way from Holton where Dr. Black practices, that he would like to take the splints off himself. The Doctor told him that if he was satisfied that the arm was all right he could take the splints off and it would not be necessary for him to come back, but that if he was not perfectly satisfied that the arm was all right, then he wanted him to come back and the plaintiff said he would.

Plaintiff claimed to have worn the splints continuously until the morning of the 28th of November when he took them off and discovered a small bunch on the inner side of his arm, when he went to see Dr. Thomas of Muskegon who recommended an X-Ray examination. Dr. Hulst next testified that on May 3, 1912, he made an X-Ray plate of the arm which showed that the radius was not straight and was bent at an angle of approximately 45 degrees where it should have been straight. Dr. Hulst was called as a witness for the plaintiff and stated first, that there should have been an X-Ray examination of the arm; second, that the splints used by the defendant should have been longer and third, that in consenting that plaintiff might remove the splints and judge for himself whether the arm was all right, the doctor was a "little careless."

Now, it must be remembered that there was no proof from any source, that the present condition of the plaintiff's arm, was due to the failure to make an X-Ray examination. And further, that X-Ray machines were not used in the community in which Dr. Black practices, or in similar communities as far as the record discloses.

Again, I wish to point out, without criticizing, the result of the doctors' actions. In all probability Dr. Hulst had been consulted before he was called from Grand Rapids to testify, and the attorney knew what his statements would be, otherwise of course, he would not have called the doctor for a witness. Now whether or not Dr. Hulst was justified in the position he took I would not attempt to state as that is a matter of individual judgment, but I do want to state this fact—that if he had not taken the stand it would have been impossible for any verdict to have been obtained against Dr. Black. In the opinion of the writer, this case will perhaps be reversed for the reason that there is no proof that X-Ray machines were used in localities similar to the one in which Dr. Black practices.

I could go on and cite numerous cases of just this nature, and tell you of many experiences I have had in the defense of these cases, but each one would only be a reiteration of the fact that in every case it was always a doctor who made it possible to secure a judgment against another doctor.

I have often wondered whether or not doctors who give expert testimony in malpractice cases for plaintiff, receive compensation for their services. It is my understanding that doctors make no charge for services rendered to another physician or his family and it seems to me they should be equally generous in testifying against members of their own profession, but from bits of information that I have been able to pick up during the trial of malpractice cases I fear

that the generosity of the doctor does not extend to malpractice cases and that a doctor who renders such service does so for an agreed price, or a share in the spoils in case of victory. Now, no one can find fault with a doctor for arranging for a fee for expert testimony in the ordinary personal injury case but there is something repulsive in the thought of one physician receiving compensation for testifying against another.

If a physician feels that it is his duty to testify against another for the good of the profession then certainly that is his privilege and no one can find fault, but let us hope that if any physician does do this he will refuse to take any compensation for rendering such a valuable service to society.

This brings me to the vital point that I want to emphasize in this paper, and that is that the remedy is absolutely in the hands of the medical profession, and when the doctors become so harmonious in their relations that they will not testify against each other, then there will cease to be a need for the services of the Medico-Legal Committee and of Insurance Companies organized especially for the protection of doctors.

Whether or not it is desirable for the doctors to become so united is a question I take it, open for grave discussion, but from my observation my sympathy is entirely with the doctors, and I have seen so many unjust suits brought against reputable physicians that I feel that the doctors would be perfectly justified in standing together on this question.

The argument is often made that malpractice suits tend to make physicians and surgeons more careful and it would be harmful for doctors to agree to stand together on this question. Personally I have no sympathy with such a doctrine, for my experience has been that doctors do their best and that they are only human and like the rest of us, must occasionally err. Judging, however, from the number of malpractice cases that I now have on my docket awaiting trial, and the number of those threatened, the time has not yet come when the doctors can be counted on to stand together and the next question presenting itself, is, what a doctor should do to protect himself from those imagining themselves injured and those who are looking simply for blood money.

The Medico-Legal Committee of the State Society is the first aid to the injured doctor generally and I cannot speak too highly of the efficiency of this body, especially of the Chairman, Dr. Tibbals, in rendering aid to doctors in trouble and to the counsel for the State Society. I have had occasion to call on Dr. Tibbals for help in nearly every malpractice case, and he has never failed to render the assistance required and I often wonder how he is able to give so much time to this work.

Another valuable aid in eradicating the unjust malpractice actions, is the Medical Protective company of Fort Wayne, an insurance company organized solely for the purpose of insuring doctors against malpractice suits. Many of the doctors in this state carry policies in the Medical Protective Company and for that reason this company has co-operated with the Medico-Legal Committee in its work in defending unjust malpractice actions.

The position I have taken may seem biased to the layman but it has been formed as the result of my experience in defending malpractice cases. I have tried in each instance to ascertain the facts and to form an independent judgment as to the merits of the case and in each instance I have been convinced that the physician had done his whole duty and had acted conscientiously, even though at times good results had not been obtained. In closing I simply wish to quote from an opinion rendered by the Supreme Court of Minnesota in the case of *Martin vs. Courtney* where the position of the doctor was extremely well stated:

"The white headstones and monuments that glisten in the sunshine within the sacred precincts devoted to the repose of the dead in the suburbs of every city and hamlet in the land, testify with unerring certainty that man is mortal, and that the most effective efforts of the healing art are incapable of resisting the conqueror of all. The very best results of science recognize this truth. The medical art of late years has made great advances in resisting the ravages of disease, but it has its limitations, and its achievements are still but an approximation to its highest ideals. It is perhaps unfortunate for the profession that too much is expected from it. Confidence in the physician by the patient is essential, but it should not be such an unwavering faith in his powers as the superstitious savage gives to his medicine man, or makes success the sole metewand of duty, but rather a sensible and intelligent trust that expects reasonable efforts, and, when these have been bestowed, submits with Christian resignation to the inevitable; for "he censures God who quarrels with the imperfections of man." The ubiquitous protectorate which jurisprudence extends to all material interests and to every science and to every art takes note of our common fate, with the possibilities of failure in the professional treatment of diseases and accords the medical practitioner in every case the presumption that he has done his whole duty, which imposes upon those who challenge his conduct in the courts the burden of establishing his negligence.

SYPHILIS IN RELATION TO CERTAIN NERVOUS DISORDERS.*

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The advances in medical science are so rapid and the changes in our ideas and knowledge extend over such wide and varied fields that the busy physician has difficulty in keeping in touch

*Read before Section on Medicine M.S.M.S. 49th Annual Meeting, Lansing, Sept. 10, 11, 1914.

even with the essentials. What we today regard as truth becomes the tradition of tomorrow. The discovery, or the identification of a germ may demonstrate the relationship between, or the entity of diseases previously considered, both from a clinical and a pathological point of view, as separate and distinct. Venerable and classical pathological theories tumble down and must be entirely reconstructed. Such a circumstance has recently occurred in the family of the syphilitic diseases.

In the past we have described as separate entities many mental, nervous, muscular and hereditary diseases, as well as numerous skin disorders and eye troubles which we have more recently been obliged to recognize as various manifestations of one disease, namely syphilis.

A few words about syphilis may not be out of place. Its general prevalence is beyond the conception of the uninformed man. Some authorities declare that it enters into the etiology of one third of all the diseases of mankind. The reasonableness of this declaration, astounding as it may seem, has recently been accredited by Barrett¹ of Melbourne, who made a special study of this subject for the Australian Government. The blood of every patient who entered Melbourne Eye and Ear Hospital during a period of four months was subjected to the Wassermann test. Especial care was taken with the examinations and it was found that 13.3 per cent. of these people were syphilitic. Few of them would have been suspected of being luetic and most of them came merely to get glasses fitted.

In the United Kingdom about 114,000 new cases develop each year. That these figures are approximately correct may be easily estimated when we know that death certificates show an average death rate of 2,600 from paresis and 700 from locomotor ataxia in Great Britain annually. As it is commonly believed that not over 3 per cent. of syphilis terminates in one of these disorders it will readily be seen that these figures are really conservative.

Fournier stated, in 1899, that 15 per cent. of the adult male population of Paris were syphilitic, and that 48 per cent. of the infantile mortality in private practice in that city was due to the same cause.

Erb² says that 120 of every thousand of the population of Berlin suffer from luetic infection in some form, while according to White 9 per cent. of the inhabitants of Copenhagen suffer in the same manner.

Syphilis is now generally conceded to have been introduced into Europe by the sailors who returned with Columbus from America. These soldiers of fortune entered the armies of the Crusaders and effectively spread it over the

entire continent from Lisbon to Constantinople. This opinion, regarding its wide-spread dissemination through Europe, though by no means new, was finally accepted by The Royal Society of England at the 1912 meeting.

Additional weight is given to this theory by the fact that lues was well known to the Indians of Peru. It had evidently existed for a long period previous to the time of Columbus, especially among the Aymaras. They had it named and knew how it was contracted and had laws to prevent its spread. As a remedy they employed metallic mercury in the form of inunctions. Bones have been found in their cemeteries, dating from pre-Columbus times, demonstrating beyond doubt the presence of syphilis among them at an early date.

This disease, or one very similar at least, was not confined to man alone, but was a well known and quite fatal disease of the llama, or alapaca of South America. Whether the germ of this disease is identical with that of syphilis or not, is not known, and whether it was originally conveyed by the alapaca to man, or vice versa, will probably never be determined. Nevertheless the Incas had laws enacted to prevent its acquirement from the llama by man. (Ashmead).

According to the same high authority the Japanese are said to have had syphilis among them for 1300, and the Chinese for 3000 years.

When it first appeared in Japan in the 7th century, it is said to have been in epidemic form, as it was in Europe eight centuries later. The Japanese and Chinese seem almost to have acquired an immunity for this disease through repeated inoculations extending through the intervening centuries. While it is more than likely that it was imported into Japan from China, there is no evidence of any kind to show from whence it was introduced into China.

It is stated positively that the most careful examination of the bones taken from the graves of ancient Egypt, as well as Arabia, and with this special point in view, has failed to reveal any signs of syphilis among these people in ancient times. The writings of Galen, one of the most acute observers of antiquity, failed to furnish a single example of any diseases which might reasonably be classed as syphilitic. Hence the conclusion that ancient Rome was free from this scourge.

Murryat and his contemporaries (1769), all laid the blame for this disease on Columbus and his men, who brought it from the new world. It was first observed in Naples and spread like wildfire throughout the entire city. For a number of years it was considered to be an infectious disease which might be contracted by being in the same room with an infected individual. Murryat says: "Thank God it has

1. Barrett, *Lancet*, June 13, 1914, p. 1719.

2. *Lancet*, March 21, 1914.

grown so much milder that it cannot be taken without contact."

Whether this disease had existed in Europe previously or not the fact nevertheless remains, that the epidemic which swept over it in the 15th century was extremely virulent. Its symptoms were so different from anything ever seen before that it not only terrorized the populace but was classified by the medical profession of all Europe as an entirely new and unheard of disorder.

The greatest real advance in our knowledge of syphilis began about ten years ago when Metchnikoff of Paris discovered that this malady could be inoculated into apes. Later it was discovered that rabbits as well as guinea pigs are susceptible.

Then, in 1895, Schaudinn and Hoffman, after long search discovered the organism itself—the *spirochaeta pallida* or *treponema pallida*. Almost immediately Wassermann and Neisser applied the "serum-complement" test, which had come into use with other diseases, especially typhoid fever, with the result that we obtained a means of determining the presence of syphilis in the absence of clinical symptoms, and without resort to the usually all but impossible procedure of finding the germ itself.

Then Noguchi, of the Rockefeller Institute, brought forth his "Luetin test," a cutaneous reaction analogous to the von Pirquet test in tuberculosis.

With these new tools to work with investigators in all parts of the world increased their efforts with tireless energy. Our ideas of this disease have been revolutionized and there are now few diseases with which we are better acquainted.

LOCOMOTOR ATAXIA.

The first nervous disorder to come under the domain of syphilis was locomotor ataxia. Since Fournier of Paris in 1871 began to advance evidence to show that syphilis was the cause of locomotor ataxia, evidence has gradually accumulated until now it would be hard to find anyone who doubts the relationship of cause and effect which these two diseases bear to each other. Kraft-Ebing originated the phrase so well known to the medical world, that "Civilization and syphilization were the causes of locomotor ataxia."

PARESIS.

As to paresis, Esmarch, in 1857, first called attention to the frequency of lues in this disorder. As time passed this frequency was observed in greater proportion. Little by little the suspicion developed that it was the *result* of syphilis and now we have the aphorism "No syphilis, no paresis." But the proof of this was not so easily nor so quickly demonstrated as in the case of locomotor ataxia, and it is

only natural that it could not be so readily established.

The onset of paresis is so insidious and so stealthy that by the time the family notices that anything is wrong the disease has progressed to such an extent that the statements of the patient are no longer to be depended on. Then there comes the complication of the so-called "Predisposing agent." On account of the legal aspect of this subject it is of more than passing importance. This subject has been threshed over and over in the courts and will likely continue to furnish pabulum for the lawyers for some time to come. Take the subject of trauma as an example. The question frequently arises as to whether an injury received is a casual agent or whether it is a resultant effect. While it is possible that an injury might precipitate or hasten the onset of an approaching paresis, following a former syphilitic infection, it is much more probable that the injury is the result of lack of care and inattention, due to a mental and physical enfeeblement, which up to that time had escaped observation. Whichever view one may accept it is certainly true that no injury alone, or so far as that is concerned, no factor of whatever sort can of itself produce paresis (that is, paralytic dementia), in the absence of a previous syphilitic infection.

Bailey in his work on "Accident and Injury," says that he has searched the literature carefully and that he has been unable in all medical literature to find a single case where trauma could be said beyond doubt to have caused paresis. Almost all of the leading modern authorities are now united in the opinion that this disorder is not only of syphilitic origin but also that it is syphilitic itself.

There are many other nervous conditions whose relationship to the spirochaeta was never heretofore suspected but which are nevertheless probably specific in origin.

Back as far as 1894 Fournier stated that all the evidence tended to show that tabes and paresis, as well as certain forms of progressive muscular atrophy, hysteria and neurasthenia, were all due to an acquired syphilis. He went further and stated that epilepsy appearing after the age of 35, without definite cause, and without previous symptoms, was due to hereditary syphilis. To this list of hereditary syphilitic manifestations he also added juvenile tabes, juvenile paresis (not infantile paralysis), hydrocephalus and congenital idiocy as well as certain forms of malformation, arrested development, non viability and meningitis. Since then several additions have been made to this list and it now includes lateral sclerosis and optic atrophy. In the main the latest developments in the knowledge of syphilis have not enabled us to exclude any of these disorders. In particular must be mentioned those cases now

classed among the congenital mental deficiencies. These cases, heretofore in a class by themselves, are beginning to be accepted as among the manifestations of hereditary lues, and there is but little doubt but that in time they will be treated under this head. In fact, as one author says, "The more thoroughly that cases of nervous disorder in children are examined, the greater the proportion in which we find indications of syphilitic origin."

There are a number of other conditions found in conjunction with syphilis which might be called syphilis itself, or which may be said to be symptomatic of constitutional disorders due to the spirochaeta. Some cases of myelitis and neuritis as well as certain tumors, apoplexy etc. are so well known in their true relationship that they need not be mentioned further.

INFECTION.

It is interesting to observe how these various disorders were eventually traced to syphilis as their cause. Careful observation and accurate histories first led to the association of syphilis as among the important etiological factors. As soon as Fournier called attention to the prevalence of syphilis as a cause of tabes, for example, and greater pains were taken either to associate or to eliminate the spirochaeta from the history, it was noticed that the percentage of admitted specificity jumped remarkably. Oppenheim, who previously had never found syphilis in more than 17 per cent. of his cases, immediately found it in 80 per cent., and other observers increased in proportion. This increase was universal, and soon there were those who claimed to have found that over 90 per cent. of tabetics gave reasonable history or actual proof of previous lues.

One of the greatest difficulties in the way of proving this question was that negroes, Egyptians, Chinese and Japanese, among whom syphilis is notoriously common, almost never develop these disorders.

Many authors, however, explain this by presupposing the existence of different strains of the spirochaeta, some of which have a predilection for particular tissues or organs. The latest champions of this theory, Marie and Levaditi³ of Paris, declare they have found that the germ of paresis and tabes is different from that causing other varieties of syphilis. The incubation period is longer, and the appearance of the lesion is different. The virus of this form of spirochaeta is less virulent than ordinary syphilis, and won't as a rule, affect monkeys. The virus of paresis does not necessarily convey immunity from syphilis, numerous cases being known where paretics have contracted syphilis. Many cases have been observed of men who have acquired syphilis from the same source,

all of whom died of paresis or tabes. One instance in particular where six men contracted syphilis of the same woman, five died of paresis. Salvarsan is, however, specific for both forms of organism when brought in contact with it direct. While salvarsan destroys the organisms with which it comes in contact it has been demonstrated that it does not pass from the general circulation through the membranes of the central nervous system and therefore can have no effect on spirochaeta in either the brain substance and its accompanying fluids or on those which have penetrated the spinal canal and effect the spinal cord with its associated nervous and spinal fluid.

The cerebro-spinal fluid when examined, following injections of salvarsan into the general circulation, has invariably failed to show that even traces of arsenic have been able to penetrate from the general vascular into that of the central nervous system. About the only drug which we know that is able to pass from the one system into the other is urotropin.⁴ Hence these organisms, safely hidden away and protected, develop with increasing vigor, being unhampered by the antibody which would have been manufactured by the germs in the general circulation. The toxins which they form here in profusion, affect the nervous system or the nerve centres direct. After all but proving the absolute dependence of paresis and tabes to syphilis, progress ceased for a time, or until the Wasserman reaction was discovered. Though at this time the germ was well known, finding it in certain phases of undoubted syphilis was impossible, so failure to find the germ was of little diagnostic importance. More reliability was to be placed in the serum reaction. However, this test was at first poorly understood and imperfect, and very complex at best, and the results obtained were variable and it was not always to be depended upon. As time passed and more skill and better technique were brought to bear upon it, the results became more uniform. Then we found undoubtedly positive reactions in many cases where otherwise syphilis could not be proven.

To confirm the truth that paresis is of syphilitic origin—if further evidence be necessary—Noguchi and Moore have found the spirochaeta itself in stained specimens taken from the brains of undoubted paretics.

Dr. Udo Wile of Ann Arbor, has assisted at the clinics at Berlin where material was taken from the brains of living paretics in the terminal stages of the disorder, and active spirochaeta observed under the dark field of the microscope. This proves that paresis is active syphilis, especially as the brains at post-mortem showed typical paresis without other complications.

3. *Lancet*, June 27, 1914, p. 1845.

4. Iverson and Schreiber *J. N. & M. Dis.* May, 1914.

DIAGNOSIS.

A positive Wassermann is now regarded as an undoubted indication of the presence of active spirochaeta in the body. (Neisser).

At present the Wassermann test is not practical for anyone but a trained and experienced laboratory man. It cannot possibly be of any value to the general practitioner, unless it be greatly simplified.

Experienced workers find that the blood, in cases of active general bodily syphilis, gives a positive reaction, while if the nervous system alone be affected, only the cerebro-spinal fluid will give the reaction. If a positive reaction is not obtainable it is generally considered that the disease is in its stationary stage and active spirochaeta are not present in these fluids. (Wilson).

It is found that a positive Wassermann reaction is present in about 40 per cent. of cases at the time the primary lesion appears. Within the next three weeks, if the case continues untreated, this percentage increases to 75 per cent., while after the appearance of the secondaries it is said to rise to 100 per cent. In later syphilis this percentage falls, and in untreated cases it is positive in about 80 per cent. of the patients and in 50 per cent. of latent cases. (Pussy).

The cerebro-spinal fluid is said to react positively in 100 per cent. of the cases of paresis.⁵

If the patient has just had mercurial treatment in any form, the Wassermann is likely to disappear for a time at least. While an injection of salvarsan, in the absence of a Wassermann, will cause the test to reappear in case there is still any uncured syphilis in the system. The reason for this is thought to be that salvarsan stirs up any dormant or latent spirochaeta.

Summing it all up, it is generally agreed that "a positive Wassermann test is conclusive evidence of the presence of syphilis even in the total absence of all manifestations."⁶

Its presence has proved to us that many cases of congenital idiocy, as well as other nervous disorders in children, are due to syphilis. One investigator found 50 per cent. of mental deficiencies generally gave positive Wassermanns.⁷ The Wassermann reaction has showed us also that 75 per cent. of the cases of syphilis which had been treated and discharged as cured were not cured at all. If the Wassermann reaction has served no other purpose this one feature of it would render it invaluable to mankind. It has also shown that mercury, when given by mouth, is almost worthless as a curative remedy. That means that if it is to be effective it must be used as inunctions, or injected hypodermically-

ly, and even then it is uncertain and slow, especially if used alone and without being reinforced by other drugs as potash and salvarsan (Milne).

The intestine acquires a tolerance for it, it impairs the patient's nutrition and it fails to cure. (Fordyce).

TREATMENT.

Schaffner, of Chicago, gives potassium iodide first. He thinks potash is *not* a parasiticide but rather that it acts as a solvent around the spirochaeta and renders it more susceptible to mercury and salvarsan. Rothstein says salvarsan is scarcely more efficient in the long run than mercury and thinks that they should always be combined.⁸

A positive Wassermann, as has been said, is now considered to mean that active syphilis is present and that there are active living spirochaeta in the body and therefore active specific treatment should be begun regardless of how well the patient may appear (Neisser). It is generally admitted that a Wassermann test cannot be relied on within a month following the discontinuance of active treatment. Many experienced teachers insist that a negative test six months after discontinuing active treatment would seem to indicate a cure. This is much more likely to be true if a fresh injection of salvarsan fails to stir up any latent organisms. The cerebro-spinal fluid should always be examined as well as the blood serum, and if a positive reaction is present, the injection should be made into the cerebro-spinal canal. Here also the Noguchi test should be tried. The Noguchi test, as has been said, consists of a suspension of killed spirochaeta. A drop is injected hypodermically into the skin. If a hard shotty inflammatory nodule appears, it is said to be positive, and to indicate the presence of an uncured syphilis in the system.

In the early stages it is practically useless, as a positive reaction is rarely obtained, but in the later stages it is of great value, and the more so because it can be used by the general practitioner. Rytina says it is usually negative in primary and secondary untreated cases, though many are positive if they have had previous treatment (Compare with the Wassermann). He also says that it is harmless, easy and absolutely specific. If it is not specific it has not as yet been disproved and it is certainly not influenced negatively by treatment. It is the best criterion of cure or of the absence of infection of any thing with which we are acquainted.⁹

Noguchi says it is positive in 100 per cent. of active tertiary syphilis, and in 94 per cent. of tertiary syphilis even when no symptoms are

5. Larrede, Mott, Morris, Williamson, Jour. Med. Sciences, Oct., 1913.

6. Lancet, July 20, 1912, p. 163.

7. Frasier and Watson, Jour. Mental Sc., Oct. 13, 1914.

8. Jour. N. & M. Dis., May, 1914.

9. Corson, White & Lundlum, Jour. N. & M. Dis., May, 1914.

present. He also says it is positive in 100 per cent. of the cases of congenital and latent lues. It is positive in a large proportion of "para-syphilis." Parasyphilis was the term used by Fournier, in 1894, to describe atrophic and degenerative conditions following syphilis. It included tabes and paresis, aortic degeneration, amyloid disease and cutaneous pigmentation. They were not thought to be due to syphilis but rather to be sequellae of syphilis to which a syphilitic patient was particularly liable. The Noguchi test is better than the Wassermann test in determining the establishment or the efficiency of a cure. Locomotor ataxia and paresis are the same disease pathologically. They would not have been regarded as separate diseases so long if one had not been called a nervous disease while the other was classified as a mental disorder.¹⁰ Lack of response to syphilitic treatment was one of the greatest stumbling blocks to the recognition of the proper relationship of paresis and tabes with syphilis as well as the fact that cerebral syphilis does not give a positive Wassermann while paresis and tabes do. Also the lesions found were not those usually recognized as syphilitic. Strumpell at one time even thought that these diseases were a post-syphilitic paralysis analogous to diphtheritic paralysis.

The great English authority, Norman Moore, has summed the whole matter up nicely in his opening address before the Fellows of The Royal Society in London, in 1912, when he says: "Since the last meeting of The International Congress in London in 1881, the opinion has slowly been established that general paralysis and locomotor ataxia are always to be accounted as manifestations of syphilis." And it seems not only is this true, but since his address a number of other diseases have been added. They are not yet accepted by everyone, but it will not be long until one would as soon deny the circulation of the blood as the dependence of most of these diseases upon syphilis.

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THE TREATMENT OF LUETIC DISEASES OF THE NERVOUS SYSTEM.*

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Everywhere we are confronted with the newer aspect which luetic disease now presents, and to this the discovery of the offending organism has naturally led. The problem of therapy differs from that presented a decade ago. Then, it was a blind effort to dislodge a disease of unknown pathology; now, it is, or should be,

a more scientific attack upon a known organism, which is often obscurely and remotely situated.

That this organism is a more directly offending factor than has been hitherto thought, is becoming more and more evident. With the finding of the spirochetes in the brains of paretics, both post-mortem and *in vivo*, and their demonstration in the cords of tabetics, we see the passing of the para-syphilitic diseases. We have long been content, though recognizing that syphilis stood in an essentially causative relation to tabes dorsalis and general paresis, to regard this as vaguely remote and poorly understood.

Even now we must not be over-enthusiastic concerning recent additions to our knowledge, nor believe that these two pathological conditions are about to be eliminated from the face of the earth, for it goes without saying that the dangers of syphilis will still, in some quarters, be minimized and poorly appreciated, and so bring in the often belated train of its symptoms those conditions which, when recognized, have already developed damage which cannot be easily if at all undone, and the golden opportunity for treatment which early stages present, will doubtless continue to be neglected with surprising and regular frequency.

Nor, on the other hand, must we permit what so often occurs, that a do-nothing pessimism paralyze our efforts in behalf of these unhappy and unfortunate patients, for anything which can even stay the progressive pathological changes will be an undoubted boon and the betterment of symptoms which cause much suffering and interfere with patient's usefulness will be well worth while.

RECENT FINDINGS.

No statistics are at all available, or at all convincing (1) showing what proportion of syphilitics develop nervous diseases, but tabes and paresis we must accept as distinctly luetic, and certainly, from the apparently increasing frequency of these diseases, a respectable proportion of syphilitics develop the one or other of these conditions, or exhibit evidences of cerebro-spinal syphilis.

White, of Harvard, has recently made an interesting statistical study (2) of the relations of the symptoms of syphilis to subsequent tabes and general paresis. A few of his findings may not be out of place nor devoid of interest here: That tabes appears between the thirtieth and fiftieth years in 76 per cent. of cases; that tabes developed within five years in 11 per cent., and in 61 per cent. within fifteen years; that in 70 per cent. of cases studied paresis appeared between the thirtieth and fiftieth year, the youngest being 16 and the oldest 76 years. The lapse of time between the original syphilitic infection and the first parietic symptoms was from one to thirty years, and cutaneous lesions in these

¹⁰ Mott Lancet, May 30, 1914, p. 1537.

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cases were extremely rare. What are the determining factors which bring about the apparently long dormant state of the spirochetes, and whether this lies in the potential possibilities of the spirochete itself or rests rather in some diathetic condition of the host are interesting problems for future study. Some observers attribute much to the varying virulence of different strains of the spirochete. That a diathetic factor is quite probable in some cases is at least suggested by Camp's recently reported case (3) of tabes, which gave a history of locomotor ataxia in six members of the family in three generations.

In putting ourselves in harmony with the modern treatment of luetic diseases, we do well to recall the old adage: "Be not the first to use the new, nor yet the last to lay the old aside," for while we shall recognize that the basal difference between the older and newer therapy lies in the use of salvarsan, we must admit that the time has not yet come when we may cut away from the older agents which have served us long and well, and that the best balanced plan of treatment is that which combines the advantages of both the older and newer therapeutic tools.

Luetic nervous diseases have hitherto been a reproach in the little that could be accomplished for their benefit, but newer methods promise a different story. Craig and Collins (4) recite results from the simple use of salvarsan which contrast strongly with those of former times. These authors are justifiably enthusiastic over some of their results with both salvarsan and neo-salvarsan, yet they say that for a year their conviction has been steadily growing that the potency of the latter is not so great as that of the former, and this well accords with the experience and judgment of many other observers. They conservatively caution that, of course, the regeneration of destroyed nervous tissue with restoration of function, cannot be expected and yet a patient "one day stricken down at his work, irrational and aphasic, and 48 hours later speaking and in his right mind" and similarly patients "coming into the hospital on crutches and going out a few weeks later walking alone or aided slightly by a single cane, which is later discarded" are quite proper causes for enthusiastic therapy. Tabetics, both of long standing and of recent development, have been surprisingly helped. Not every case by any means yields at once and easily, but the record is undoubted of lessening of pains which long have tortured, the disappearance of troublesome incontinence, the improvement and even disappearance of the ataxia with consequent betterment in gait, a progressive optic nerve atrophy held in check. These results have followed from three to six treatments with salvarsan or neo-salvarsan, or both, and without re-

course to the more complicated methods of administration. The gravity method of intravenous injection is preferred. Details of technique are, of course, needless here. Not only have tabetics, hitherto helpless and unable to work, resumed their usual avocation, but general paralytics, irritable, uncomfortable, a care and anxiety, have become good-natured, comfortable, mentally clear, and in some cases the intermissions, if such only they are, have permitted return to usual vocation.

Improvement, of course, is not to be rashly heralded as a cure, nor salvarsan vaunted as a panacea, for such it certainly is not, but if newer treatment can even check disease processes which have hitherto been irresistibly progressive, it is a marked contrast to former therapeutic results.

LABORATORY EXAMINATIONS.

To know with any accuracy what is really being accomplished, therapy must be checked up with laboratory tests and methods, and no longer must we work in the dark. We must know more of what we are really doing. Constant recourse must be had to the Wassermann reaction, which Nonne (5) well says "can no longer be regarded as specific but only as characteristic of syphilis" since it occurs in a few other pathological conditions. It commonly indicates, when positive, that the subject has at some time, somehow, been infected with lues. Nor must we be content with the Wassermann reaction in the serum alone, for it may give positive results in the spinal fluid, even when negative in the serum, nor does the negative phase positively preclude lues in the patient.

It is perhaps needless to recall here that of late years neurologists of all countries have quite uniformly established their differential diagnosis between syphilitic diseases and other affections of the central nervous system by laboratory investigations as to the increased lymphocyte count in the spinal fluid, the increased albumen content of the same, and the Wassermann reaction both in blood and spinal fluid. In Kaplan's experience (6), the maximum limit for the normal cell count is 8 lymphocytes to a cubic millimeter; the borderline count from 9 to 15; the pathologic increase 15 to 60 cells per cubic millimeter; hyper-lymphocytosis 60 to 200 cells per cubic millimeter. Another observer regards everything above 12 cells per cubic millimeter as pathologic increase, while others maintain a lower limit as the normal maximum. The test for determining increased albumen content introduced by Nonne and Apelt, so-called Nonne-Apelt Phase I. Reaction, is quite simple and easily performed, though some laboratory workers prefer the Noguchi test. Both are simple and easily, if carefully, performed. Into their exact technic, as

also into that of lumbar puncture, it is needless to go here.

Laboratory equipment and laboratory methods carefully applied are necessary not only for proper diagnosis but for proper checking up of therapeutic results. Therapeutic effort will be directed towards reducing the cell count, bringing the albumen content more nearly to normal and the Wassermann reaction to negative, and these should be applied at intervals in a search for laboratory evidence of elimination of the active luetic factor.

It is well known how resistant to treatment luetic diseases of the nervous system are, and this is well explained by the often remote intrenchment of the spirochete. Noguchi, (7) for example, found spirochetes deeply embedded in the nervous tissue of a tabetic cord. It is to reach the spirochetes situated apart from active vascular channels that intraspinal methods of treatment have been suggested, and of these there are several.

TREATMENT.

Of the intraspinal treatment Fordyce (8), an observer of large experience, says: "The intraspinal treatment has placed the treatment of syphilis on a more accurate and scientific basis." Some investigators, more bold than those content with injecting a salvarsanized serum, have sought to introduce the arsenical preparations directly into the spinal canal. Of these plans that of Ravaut of Paris may be mentioned, which Wile (9) of Ann Arbor has followed in this country. Though salvarsan was recognized as unsuitable for such use, these observers have made use of small amounts of neo-salvarsan, first tried by Wechselsmann, and then by Marinesco, later by Marie and Levaditi. Wile, in his preliminary report, describes his solution as a 6 per cent. (hypertonic) solution of neo-salvarsan in distilled water, each drop of which contains 3 mg. of neo-salvarsan. From 3 to 12 mg. is the dosage (1 to 4 drops of the solution), the syringe used being accurately graduated in drops. A small amount of spinal fluid is allowed to run into the syringe barrel and mix with the solution. The mixed spinal fluid and drug is then gently injected into the spinal canal, after which the patient is kept for at least an hour in the Trendelenburg posture. Though these injections, so far as immediate symptoms are concerned, are apparently well borne, a number of cases have already been reported in which severe bladder and kidney complications have later followed. Swift, of the Rockefeller Institute, in conversation with the writer, was emphatic in his belief that those workers who persisted in their attempt to directly introduce arsenical drugs into the spinal canal were bound sooner or later to meet with serious, if not fatal, complications as a result.

It may, then, be doubted whether these attempts to directly introduce the drug within the spinal canal are warranted in view of the dangers incurred.

No plan of intraspinal medication has probably yielded better results, nor had more extensive trial than that of Swift & Ellis of the Rockefeller Institute. Briefly stated, their technique is as follows: From the vein of the patient to whom salvarsan has been intravenously administered an hour before, 50 cubic centimeters of blood is withdrawn, placed in the ice box and allowed to stand over night. Its serum carefully pipetted off and diluted with normal saline solution to a strength of 40 per cent. (for example, 12 cubic centimeters of serum and 18 cubic centimeters of normal saline) is inactivated at 56 degrees C. (132.8° F.) for half an hour. A lumbar puncture is made, several cubic centimeters of spinal fluid allowed to escape, and the 30 cubic centimeters of 40 per cent. salvarsanized serum is carefully injected in the subarachnoid space, all of course being done under the strictest aseptic precautions. The patient is kept in bed for 48 hours or more, depending upon the patient and the freedom from disturbance following. The treatment is ordinarily well borne, though in some cases pain and tingling in the legs, some dizziness, some headache, and in a few cases temporarily increased ataxia have followed the treatment. This treatment should be several times repeated at intervals of one or two weeks, the results being checked up by sero-biological tests, made in a properly equipped laboratory. Clinical evidence of improvement has been gratifying, but it is still more satisfactory to have the sero-biological evidence which attests the negative Wassermann in serum and spinal fluid, and the approach of the spinal fluid more nearly to normal.

A number of workers have already reported series of cases which have shown remarkable improvement, while others have been little affected. The reports, however, have been sufficiently encouraging to lead to the belief that this is a distinct advance in the treatment of general paresis, tabes, and other hitherto hopeless luetic diseases of the nervous system. Of the use of the modified plan proposed by Ogilvie, I have seen no report. He incorporates salvarsan and human serum direct in vitro, and Fordyce speaks of it as having the advantage of standardizing the dose, although this is still in a state of evolution. From his experience, Fordyce regards the limits of safety as lying within 0.5 mg.

The writer's own experience with the intraspinal treatment has been confined to the Swift-Ellis plan, and all of his work has been done at Harper Hospital. My cases number six, and the series is yet so incomplete as not to

warrant detailed report. Of these six cases, three have received but one treatment, one two, one three, and one four treatments. This last is a sailor aged 60, a case of cerebro-spinal lues who has clinically shown considerable improvement. Mercurial inunctions and potassium iodide have been given in the intervals to all of my cases.

One fatal case should be a reminder that in salvarsan we are dealing with a powerful drug which we should use only with the greatest care, and even in spite of all precautions that we may meet fatal results.

This case was a man of 32, of negative family history, who gave an account of a primary sore in May, 1909, which was treated for one and one-half years with "a yellow pill" and a KI solution. He thought himself cured until 1911 but had frequent headaches and sought treatment by salvarsan in Philadelphia, where he says he had two injections six or eight months apart. No other treatment until April 8, 1914, at the Government Hospital at Hot Springs, Arkansas, when he began an intensive mercurialization, baths being taken at the same time. On June 5th, he said, he was there given intravenously 0.5 gram of salvarsan and on June 12th he was given 0.4 gram. He first consulted me in Detroit on the 22nd of June. He gave a history of pains in the stomach, girdle sense, numbness of feet and legs, and had had tremendous gastric crises, when he said he "howled with pain." His pupils were equal and responsive, his knee jerks were entirely absent, and Romberg symptom markedly in evidence, the gait stiff and tabetic in character. He solicited the administration of salvarsan and salvarsanized serum, of which he had somewhere heard. The Wassermann in the blood was negative, but was positive in the spinal fluid. The Noguchi test was positive, the cell count 151.

On June 27th, at noon, 0.6 gram of salvarsan having been previously administered intravenously (14 days after his last dose at Hot Springs), a trifle less than 30 cubic centimeters of 40 per cent. solution of salvarsanized serum was injected intraspinaly, with all usual precautions. He had a bad night, suffering much pain, and next morning complained bitterly of an intense burning pain in the stomach and legs, which morphine failed to relieve. His pulse was rapid and weak in character, and he was in a clammy perspiration. The heart progressively failed, and he died 24 hours after the intraspinal treatment. That this particular part of the treatment, however, had apparently nothing to do with the death was disclosed by the autopsy, nothing abnormal being found in the cord, no evidence of meningitis or other complication. The brain was very much congested; there were sub-pial hemorrhages which led us to the belief that he died of a toxic encephalitis, having apparently in some way seen sensitized to salvarsan. The examination of other organs was entirely negative.

SUMMARY.

Let me summarize briefly the points here touched upon.

1. In salvarsan we have a great addition to our therapeutic weapons in the treatment of lutetic diseases of the nervous system.

2. Tabes and paresis should be treated by the regular profession, and not left to be the

prey of unscrupulous quacks who have nothing to offer, while we have much to offer in the way of possible results.

3. The modern treatment of nervous syphilis must be checked up by laboratory methods. Sero-biological evidence of improvement is quite as important as the clinical signs, and a properly equipped laboratory is essential.

4. The intraspinal treatment of lutetic nervous diseases is a scientific advance which should be persistently but cautiously followed by those equipped for such work.

5. We should be hopeful and not pessimistic in our therapeutic endeavors.

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DISCUSSION OF PAPERS OF DRS. HITCHCOCK AND TAYLOR.

DR. OSTRANDER, Kalamazoo: At the hospital with which I am connected, every patient that is admitted has a Wassermann test made on the blood. We must have some valuable data at hand to give some day. If there is a positive Wassermann on the blood, the fact of clinical symptoms before, seem to indicate that syphilis is present. With regard to prevalence of syphilis, it is more prevalent among male patients; perhaps four or five times as common among men as women. In all of these cases there is an apparent improvement, both from the clinical and laboratory standpoint. In fact there is quite a striking improvement. I use the word "apparent," because these cases should be checked up and records made of equal number of cases which are not receiving any treatment whatever, because, clinically speaking, quite a number of paretics improve without any treatment whatever. I have known men to recover apparently so far as to be able to assume their business relations but who finally broke down. I recall a woman, who was receiving no treatment whatever for paresis, in the most deplorable condition: she was removed against advice of medical officers and expected to die; she came back two years after, with the statement that she had recovered sufficiently to be able to go on with her housework for a year, before she commenced to break down. For that reason, we ought to use tests and see why these laboratory findings show an apparent improvement in those who are not receiving treatment, as well as those who are receiving treatment.

DR. CLARA DAVIS, Lansing: I would like to ask the members if they have had experience in giving salvarsan in oil in these cases. I used the method in one case myself, in a case of paresis, and found that the patient was greatly improved; that the speech became better, walked better, was able to add and multiply and showed as much improvement as a case reported by the Swift-Ellis method. It

would seem that this method is at least worthy of trial, because of its simplicity.

DR. HASKELL, Ann Arbor: The point that the doctor has raised is an important one. My experience with the Swift-Ellis treatment has been confined to cases of paresis. I had only one case of tabes. I was not able to produce a negative Wassermann reaction with high concentration of the fluid. Pains had greatly diminished. The efficacy of any form of treatment must depend upon results. The first patient that I treated with the Swift-Ellis method was a little over a year ago: a well advanced case of paresis, with a marked series of complications. He had had at least 300 seizures. The case was hopeless, but was my first patient and I thought he would be a good case to begin upon. He had only a small number of injections—perhaps five. He was in the hospital about two months and, during that time, although he had private admissions to the hospital, he had only five or six seizures, so, in that case, at least, the Swift-Ellis treatment had a very definite effect. It must not be overlooked that, in these same cases other men have had striking results with mercury. It is not fair, after a year of treatment, to say just how much the permanent results are going to be. The patients that I have treated with salvarsan serum have shown very beneficial results; they have left the hospital and are attending to their work. As Dr. M—— says, one must be skeptical and careful in publishing results; we should not publish them until three years have elapsed. I was talking with Dr.——, who told me that he had a case which had been under careful observation for three years; the pupils were absolutely fixed from light three years ago. Following the Swift-Ellis injections, the action came back normal.

DR. PORTIS, Chicago: I have nothing to add to these papers. I would like to take this opportunity to compliment Drs. Taylor and Hitchcock for their very vital papers. They have gone into the details of the laboratory methods of taking the diagnosis. I have nothing to add upon that. In Chicago, I have gleaned that the men still feel that the old method of treatment with mercury and iodine has a place and that the old treatment of salvarsan has a better place than the new. If, after the exhaustion of other methods of treatment, you still have your tabes, it seems justifiable to use any extreme method that you want to try; the patient is going to die and it is justifiable, but I do not think that it is the treatment of the future; we will get some better treatment for syphilis.

DR. FREUND, Detroit: Dr. Taylor has very well brought this subject out, and it should be emphasized that all cases of this type must be considered as syphilitic and treated as such, if nothing more. Dr. Portis has just spoken of a very important thing; a tendency to lay aside the importance of mercury and iodine. I believe that all syphilitics must have a treatment of mercury, but not in the same sense that we treated syphilitics with mercury before salvarsan was one of our methods of attack. The latter treatment is now quite universally in use, but why we should expect more rapid results with the use of salvarsan than we have with the potent mercurial preparations is beyond my understanding, and why we should look for definite expressions of opinion in the year and a half that salvarsan has been in use is also beyond me. I believe that it will take a great number of years to know just what the value of the Swift-Ellis method may be. With the use of the Swift-Ellis treatment we have a form of attack upon tabes and probably paresis, which causes our patients some measure of relief. I have used the Swift-Ellis treatment in quite a number of cases of tabes. The number of injections that should

be given can not be stated; as long as the cell count remains above eight and the Wassermann action remains positive, it is indication for further treatment. Symptoms disappear of themselves, without any treatment as we know. It is merely the laboratory test that must be our absolute indication, I believe, of the continuance of the treatment. I am firmly convinced that salvarsan is much more potent than neo-salvarsan, but can agree with what many have said, that neo-salvarsan is a good tonic. I have wondered whether it has been the introduction of fresh serum into the canal that has had something to do with the amelioration of symptoms. It is a method that must be tried and continued and that can give a promise of relief. As to repeated dosage, there is no limit. I have one patient who is to receive the 10th or 11th dose at the present time, and I have had no difficulty in making them believe that I have a method which is going to give freedom. As to salvarsan in oil, I would recommend that it be tried, because in one case I was gratified to see the result that came from its use.

DR. BURR, Flint: On the subject in general, the experience with salvarsan has shown the growing conservatism of the medical profession. The consensus of opinion is about as expressed by Drs. Haskell and Ostrander; that the measure of betterment was sufficient in which to base some optimism, but not sufficient to cause us to set too much store on this promising discovery. I have one case that has improved in about the measure that patients have improved of whom I have heard others making mention.

DR. HITCHCOCK, Detroit: Dr. Davis spoke of the very small amount of salvarsan that must find its way to the tissues and it is a small amount but it gets results. I hope I have been conservative in the estimates in my paper. Watch carefully; scrutinize results, but these treatments do seem to me to hold out new hope in this disease. In reference to what Dr. Davis has said in regard to mercury, it is the very fact that the old methods have been tried so numerous and so precisely with the most discouraging results, that we ought to welcome anything that gives us apparently better results.

DR. TAYLOR: Another thing the Wassermann test has done. It has thrown the greatest doubt upon Colles and Profetas laws. Briefly they are as follows: Profetas law says that "A non-syphilitic child of a syphilitic mother does not acquire the disease from nursing the mother." Colles law states that a non-syphilitic mother does not get syphilis from nursing her syphilitic child, but that a wet nurse may contract it. McDonough says that he has found that 70 per cent. of mothers of syphilitic children, give a positive Wassermann, and that if they are given a provocative dose of salvarsan, practically all of them give a positive reaction. He thinks all such women who give birth to syphilitic children are the subjects of latent syphilis, and not infrequently they develop tertiary symptoms later, or become the victims of "parasymphilis." In fact the milder the syphilis, the more likely the development of tabes or paresis later.

Numerous foreign investigators, according to Sir Henry Morris, find that every mother of a syphilitic child gives a positive reaction and that they are consequently syphilitic in spite of the old idea in Colles law that they have escaped. This easily explains why they do not become infected from their syphilitic children, because a person who has syphilis cannot be reinfected. Sir Henry Morris says that he personally knew of "Women who never having exhibited any symptoms of syphilis and having had a child or children by a syphilitic husband,

has borne a child with marked signs of congenital syphilis to her second husband, who was himself quite free from any syphilitic taint." (Address Royal Med. Soc., London). This seems very rational in connection with the statement by McDonough that "There is no such thing as immunity." "Either a person has not had syphilis before and will contract the infection if exposed to it, or, being syphilitic already, he does not take it afresh."

Mothers miscarry a number of times, then a number of children live a short time but die; later ones live but are likely to be subject to tabes or paresis. My case of a woman pregnant 18 times, first two miscarried in the early months while the next three were lost in the later months. Two were then still-born after which five were born alive but lived only from a few days to six months. Then there were four who are all living. I believe that this woman is now developing tabes. There are no other signs and no history of any syphilitic trouble of any kind.

I am interested in Dr. Davis' remarks and I am not familiar with any reasons why that would not be a good way to give salvarsan. Certainly it seems to do considerable good.

INFANTILE SENSITIZATION TO EGG-ALBUMIN.*

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It has long been known clinically that a certain small number of infants was made acutely ill by eating even a small quantity of egg. This was termed an "idiosyncrasy" and ordinarily little attention paid to it. The mother usually supplied the prophylaxis by eliminating eggs from the child's diet. These idiosyncrasies have been one of the mysteries of clinical medicine. In recent years, however, considerable light has been thrown upon the subject by the establishment of the general principles of sensitization or anaphylaxis. An interesting clinical chapter will no doubt be written sooner or later upon the relation of sensitization to articles of food, and probably the most common of these phenomena is sensitization to egg-albumin. Although I have been able to find only fifteen cases reported in the literature, and it is often spoken of as a rare condition, I am satisfied that it is by no means unusual for the reason that I have myself seen ten cases in the last few years. It seemed worth while, therefore to describe the condition as a clinical entity. A typical case history is as follows:

CASE 1: Boy born August, 1908. Breast fed for several months—parents both unusually well and strong. When ten months old the mother gave child a very little coddled white of egg. The mother is sure that the child had never tasted egg before. In a few minutes two large blotches appeared on his face and the left eye was swollen shut. He cried, vomited, and was very restless. Had a sharp rise of fever in a few hours, temperature not taken. Three days later was given two drops of white of

egg. This time the blotches appeared, he lost his voice, and had fever, but no vomiting or diarrhea. No more was given him until fifteen months old, when he was given a small bit off the tip of a spoon of soft cooked egg with the white and yolk mixed. He quickly began to cough and this continued more or less for over an hour. He lost his voice, his lips and eyelids were thickly swollen and his eyes evidently itched. The symptoms began to subside in about half an hour but did not entirely disappear for more than six hours. This was repeated in a few days with a similar experience. At the age of twenty months the child was playing in the kitchen, picked up an egg-beater with which the cook had been beating egg-white for frosting a cake. He simply touched this to his lips and in two minutes the lips were noticed to be red and swollen. This time there was no other disturbance, but the swelling lasted several hours.

At the age of three years the feeding of egg was begun again and the yolk was given without symptoms. The administration of minute quantities of white of egg was then begun at intervals averaging about one a week. The quantity was gradually increased until after a year he took a whole egg without disturbance.

The child is of a precocious type but aside from two mild attacks of auto-intoxication with acetone and this egg-albumin poisoning he has never been ill. Various other proteids have been tried but no reaction occurred.

Inquiry developed the fact that the father's sister had had a similar sensitization. He knew of no other cases in the family. This sister was older and died at the age of thirty, so complete details of the case have been unobtainable. The essential fact, however, that the girl could never eat the smallest bit of the white of egg, is well attested. She vomited and had skin eruptions after eating food containing this substance and sometimes was very ill. The cooking for the household was much changed by the requirements of the child. About the age of puberty the skin eruptions disappeared and from that time until her death at 30 she was subject to asthma. So far as is known she never overcame her sensitization to egg-albumin. She died with general anasarca due possibly to nephritis.

This case is of interest, not only for the relationship to the boy with similar symptoms but also for the asthma later imposed upon the case. We have seen eyes, lips and tongue swell in these cases, and the voice lost at times. It seems quite within the range of probability that the edematous condition might spread to the bronchioles, giving rise to asthmatic symptoms. It is not possible at this late date to correlate these conditions and the dropsical death.

The following cases illustrate the interesting relations of the condition to asthma and hay fever:

CASE 2. Boy now aged 8. When six months old, had a diarrheal disorder and was given a teaspoonful of egg-albumin. Mother is certain that he had never tasted egg before. In a few minutes his face was covered with itching blotches, eyes and lips swollen,

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diarrhea, vomiting, digestion upset for days. This sensitization continued with slight amelioration until the lad was six years old. During the last two years his tolerance has increased but he is still upset by eating the whole of an egg. He has had several pronounced attacks of asthma. These are brought on by smelling a rose.

CASE 3. Girl now 10 years old, sister to Case 2. In infancy had a mild intolerance for egg which still exists. After a cooked egg has gastro-intestinal disturbances usually accompanied by high temperature (104° F.). There have been no skin eruptions in this case but the intestinal disturbance is unfailing. On four or five occasions this girl had gone into a country barn where a large quantity of hay was stowed away. On every such occasion within a few minutes she begins to sneeze, her eyes water and become red, her nose runs and she has all the symptoms of a violent coryza. This passes away in a few hours. She has never had asthma nor hay fever other than these short attacks. She is not sensitized to roses.

The mother of Cases 2 and 3 was subject for years to severe attacks of asthma beginning in early childhood, and is always affected by hay in the same manner as her daughter.

This group of histories is very suggestive. The mother and son had asthma in childhood; the mother and daughter had respiratory sensitization to hay; the brother and sister were sensitized to egg-albumin.

From my own series of ten cases and fifteen cases found in the literature, I venture to offer the following brief description of the condition as a clinical disease:

ETIOLOGY.

The immediate cause of the symptoms is the contact of a mucous membrane with egg-albumin. It may be raw or cooked, alone or in combination. The symptoms may also be produced by contact with scarified or delicate skin, but are slower to appear and less severe. The quantity of albumin may be very small in some instances. The severity of the symptoms bears some relation to the quantity taken.

The underlying cause is evidently a condition of so-called sensitization or anaphylaxis. This can be produced in animals experimentally. The exact cause of its occurrence in infants is unknown. In one case of this series the symptoms appeared at the second ingestion of egg-white, an interval of some weeks having elapsed. In six of my cases the symptoms certainly appeared after the first use of egg-white. One could hardly be more certain of the facts in any clinical history than of this. These cases were all except one in well-to-do families with excellent care and surroundings.

Heredity.—One of the most interesting features of this disorder is the frequency with which it reappears in a family. In five of my ten cases there was good evidence of this condition in the previous generation. In two the mother, once the father's sister, once the father's brother,

once the mother's brother; Vaughan (14) also found that experimental sensitization to protein may be transmitted to the young.

Sex.—Seven of ten infants were males.

Age.—These ten cases ranged from four to fourteen months at the time of the first attack.

PATHOLOGY.

The essential anatomical feature of this disorder is an urticaria-like lesion. There is a redness, swelling and edema of the mucous membranes of the mouth, and probably of the stomach, when any of the egg-white is swallowed. There are wheals in the skin, especially about the faec. The eyelids are swollen. There is evidently edema of the vocal cords or larynx in some cases.

No autopsies have been reported.

SYMPTOMS.

The similarity of the history of these cases is remarkable. The chief variation is in the severity of the symptoms which depends on the amount of egg-white taken, and on the degree of sensitization. Another marked feature is the promptness with which the symptoms appear. In the series of cases here reported the children were very ill in less than five minutes after taking the egg. The first thing noted is the swelling of the lips. Then the eyelids swell, red blotches appear upon the face, the child cries lustily. If any of the egg-white has been swallowed, vomiting and later purging follow with evident abdominal distress. In severe cases the urticaria appears widespread over the body and the child claws at its skin wherever it can reach it with its fingers. Fever is present (104 in one case) if the other symptoms are severe. In one case the voice was lost and there was the unvocalized crying so frequently heard in laryngeal diphtheria. In this instance there was also an irritative cough lasting an hour.

These symptoms gradually subside, and are usually gone in twelve hours, frequently less.

DIAGNOSIS.

The symptoms are so striking and appear so promptly after egg has been taken that there can be little doubt in a typical case. In cases where the sensitization is slight, as in older children the first symptoms may be abdominal pain and may not appear for fifteen or twenty minutes. The phenomena are constant. They appear every time egg-white is taken, no matter what form or circumstance. There is no exception to this.

PROGNOSIS.

Clemens (6) records a case which he saw when the child, 14 months old, was moribund and he despaired of its life. It finally did recover. No deaths from this disease are recorded.

ed, but these children seem alarmingly ill, and such symptoms in infants are always serious. The prognosis for the immediate attack is therefore good. It does not follow that the sensitization will disappear. I have the records of nine persons who were followed into adult life by this inability to eat anything containing even a trace of egg-albumin. The lot of these is indeed an unhappy one since the white of egg has such a wide variety of uses in cooking. Three of these were subject to frequent attacks of asthma.

Undoubtedly there is a strong tendency toward spontaneous improvement, since the condition is so common in infancy and so rare in adults. A certain number, however, show no tendency to improve and they should be given intelligent care and treatment to rid them of this unfortunate taint.

TREATMENT.

The treatment of the acute attack is symptomatic and simple. A purge, cold compresses and a cooling lotion are enough.

The rational treatment for this condition, of course, is to overcome the sensitization. This was done for the first time by Dr. A. T. Schofield (1) and reported in the *Lancet* in 1908. The case was a typical one and the boy had grown to be thirteen years of age. In spite of precautions he was frequently made ill by this peculiarity. There seemed to be no tendency to recover. The boy was given a pill containing one-ten-thousandth of an egg-white in calcium lactate. This was given once a week and the dose gradually increased. It took nearly two years to enable him to take the whole of an egg. The cure, however, seemed to be a permanent one.

Herschell (3) reports a typical case in a lady of 22 years. He prescribed vegetable charcoal but does not state the result.

Case 1 of this series was treated according to the Schofield method and was able to take a whole egg after about a year. Some of the others are now under treatment.

The future of these cases is so unpromising that it seems worth while to carry out a long therapeutic procedure unless there is evidence of spontaneous improvement.

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DIAGNOSIS AND TREATMENT OF ACUTE APPENDICITIS AND ITS COMPLICATIONS.*

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When education on part of the profession and of the laity has progressed to the point where no question can arise as to the treatment of this disease, when death has ceased to exact its toll from the host of sufferers therefrom, then, and not until then, should this subject be allowed to rest. All ages in life are apt to fall before this disease, the neglect of which marks with many a gravestone the road from infancy to senility. Even in ordinary cases the symptoms call aloud for recognition loud enough to enable us to eliminate it before satisfying ourselves with a less dangerous diagnosis.

Appendicitis is four times more frequent in males than in females, and in our experience the most severe infections occur in the most robust individuals. While it attacks any age, it has a preference for the period that lies between the years 18 and 30. In this series of 436 cases operated upon during the past eighteen months the average age was 24; the youngest a patient of sixteen months, the oldest, of 73 years, while there were seventeen cases that fell under 5 years of age.

SYMPTOMS.

The usual symptoms are pain, nausea or vomiting, local tenderness, muscular rigidity, increased pulse rate with or without fever. As a rule they appear in the above order. In our series of cases their severity in nearly all instances denoted the extent of the pathology. Pain, local tenderness and muscular rigidity may be the only symptoms present, but they are sufficient to enable the surgeon to make a diagnosis. The pain, which usually precedes the nausea or vomiting, is distributed from the umbilicus to the lower abdomen, and often to the stomach. This pain is never severe at first, or accompanied by shock; it is more like a feeling of distress.

In over 75 per cent. of these cases, nausea or vomiting followed within a few hours after the onset of the pain. Flexion of the thigh on the body follows within a few hours after onset of the symptoms in well marked cases. The pain is usually relieved by vomiting and also by the expulsion of flatus, which lessens the tension

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in the bowel lumen. Local tenderness can usually be found in from six to ten hours after the onset of the pain. In making the examination one should always begin with the left quadrant, thus better to detect local tenderness in the right quadrant. Fever, from 99 to 101 degrees is often present within from twenty-four to thirty-six hours; but this symptom is unreliable, for even in the worst cases it may be, and often is, absent. Although the degree of fever may be of value in differential diagnosis, it has no part in early diagnosis.

The pulse rate is usually elevated early in the course of the disease. The rapid, wiry pulse of 120 or over means complications. The onset for hours may be apparently harmless, when suddenly the most alarming symptoms appear. Surgeons of the greatest experience regard acute appendicitis as a dangerous enemy, and those who do not see in every acute case an element of danger are either ignorant or reckless, and are therefore unsafe medical attendants.

We are always finding surprises in regard to the extent of the pathology which has taken place within a few hours. In six cases of this series, gangrene had made its appearance within fourteen hours. The writer has seen two cases where gangrene and perforation had taken place within ten hours after the first symptom.

In this disease blood changes take place early; we may have a count of from 15,000 to 20,000 leucocytes within twenty-four hours. In ordinary cases the blood count is not necessary to arrive at a proper diagnosis but in prognosis the differential blood count is of much value. A polymorphonuclear count of from 18 to 82 usually means pus or exudate; counts above 90, more extensive pathological changes and grave prognosis.

If the infection drains into the bowel all these symptoms gradually subside. When it becomes localized the general symptoms subside, but with a septic temperature, furred tongue and the detection, on palpation, of a localized collection of pus. This abscess may be absorbed, or by gradual extension cause secondary abscess or general peritonitis. Sudden pain with more or less shock, etc., means perforation. In cases with suspected localized abscess, vaginal and rectal examination should never be omitted, inasmuch as the symptoms vary with the position of the appendix.

When the course of the disease is not toward a spontaneous recovery or localized abscess, but towards general peritonitis, there will be gradual or sudden increase of the unfavorable symptoms, such as general pain, rise of pulse rate, vomiting, constipation, etc. The onset of general peritonitis is often initiated with a chill, and the patient appears anxious for the first time. We are dealing then with a well-developed

case of diffuse peritonitis. In some cases, (and not a few) diffuse peritonitis may rapidly follow the first symptoms within twelve to twenty-four hours. These are the fulminating cases.

DIFFERENTIAL DIAGNOSIS.

The following may sometimes need to be differentiated from acute appendicitis: urethral and renal calculus, intestinal obstruction, ectopic pregnancy, salpingitis, and pneumonia, especially in children.

TREATMENT.

It has long been established that the treatment of appendicitis is surgical. This does not mean that everyone should have immediate operations; but if all could have immediate operation there would be practically no deaths from this disease. In the early stages, when the infection is confined within the appendix, the patient will not only be cured permanently by an operation, but further infection with its high mortality and complications of costly nursing and expensive surgery will be avoided. From an economical standpoint such early radical treatment argues well for the patient. Here he will recover from the operation and be out of bed before his less fortunate brother recovers from the sickness of a moderate attack. Operations performed at this time are among the safest and most satisfactory of operations for both patient and surgeon. Here, in nearly 100 per cent. of cases one can expect that his patient will recover within a few days and be assured that he is no longer carrying about concealed weapons which may explode at the most unfavorable time.

What a marked contrast is the surgery of the late or delayed cases. Here one deals with extreme pathology plus a sick patient who is not suited for any operation, yet whose condition is such that further delay would be fatal. After the onset of peritonitis the mortality increases with the increased delay before operation. Complications arise in equal ratio to improper treatment by friends or physicians.

"*Safety First*" applies here as with anything that endangers human life. The patient should have explained to him the comparative safety of the one procedure and the danger of the other. A physician has no right to treat medically a patient with a well-marked attack of appendicitis, without explaining to him or to his friends the possible danger of such treatment, thus teaching them to co-operate with him if the case does not soon take a favorable course.

TREATMENT OF SYMPTOMS.

During the first attacks there may be reasons for delay of operation. Such cases must be treated properly to aid resolution; or, in the

event of perforation or abscess formation, to localize the infection as far as possible. Morphine or its derivatives should never be used in this suspected disease until the diagnosis has been made and the treatment outlined. It masks the symptoms and blinds the attendants to the fact that while the patient is apparently doing well, the disease, on the contrary, is making progress.

The diagnosis made, if operation cannot be had at once, morphine, and that in full doses, is one of the best methods of treatment. It relieves the patient, quiets peristalsis, and lessens shock in cases attended with peritonitis. The vomiting and distention are best treated by means of the stomach tube used either before or after operation. In cases with peritonitis this is the greatest surgical aid. The tube should be passed every three or four hours; in bad cases lavage should not be performed; simply relieve the patient of the immense amount of material that is killing him. We rely on the stomach tube more than any other measure in the treatment of these cases; it is of more value than all other means combined. We have had many cases, the recovery of which was effected by the passing of the stomach tube as many as thirty or forty times. In former days the black vomiting of peritonitis usually meant approaching death; now it means neglect, unless this procedure has been fully carried out. Small enemata may be given to unload the lower bowel. The best is the alum enema, on ounce to one pint of water at 120 degrees.

Cathartics should never be given. Many a death has been hastened by the "calomel route," and the "silent messenger," epsom salts, and sodium phosphate are the closest friends. Starvation must be absolute; not a particle of food, not even water, should pass the patient's lips for the first twenty-four hours. After this, as a rule, water may be given per rectum every six hours. This will greatly relieve the thirst. The writer believes that the ice-cap is harmful; it aids coagulation, thereby injuring the abdominal wall, while by inhibiting leucocytosis it does more harm than good. The hot water bag is more beneficial in relieving pain and at the same time is more grateful to the patient.

The head of the bed should be raised so that in the event of perforation of the appendix the infection will be confined to the lower abdomen. Under such treatment cases that for any reason cannot be operated upon may go on to convalescence and the severe cases will have an opportunity to become localized. When reasons are such that operation must be postponed until removal to hospital, the patient is not depleted by harmful and dangerous medication but comes to operation in as good condition as possible. While it is desirable of course that all severe cases should be operated upon at the hos-

pital, it is often not wise but very harmful to transport such cases for long distances in trains or ambulances. With proper nursing they will do much better having the operation in their homes.

TREATMENT OF APPENDIX STUMP.

In ordinary cases the stump is tied off and inverted, but in severe infections and in all cases attended with peritonitis no attempt is made to do more than ligate; and we should be sure not to tie too tightly, as many a case owes his change for the better from the very beginning, to a fecal fistula at the appendix site.

DRAINAGE.

Drainage varies with the infection. Usually gauze and soft rubber tubes are used, or rubber tissue and the cigarette drain. In the cases of general peritonitis several tubes are used, usually two in the wound and one each in two or three stab wounds, one in the right flank, one in the left and one in the median line above the bladder. We do not feel safe in these cases unless we have made the stab drainage.

TREATMENT OF LOCALIZED ABSCESS AND GANGRENOUS CASES.

Formerly we opened a large number of these abscesses and inserted drainage without removing the appendix. Now, if the patient is in fair condition, we always remove the appendix unless it is so buried under adhesions as to render its removal unsafe. Prolonged search should never be made for such, for if appendectomy takes more than a few minutes it should not be performed. The inexperienced and untrained man will do better to do few appendectomies, and satisfy himself with simple drainage. An appendix once the cause of an abscess will seldom cause further trouble. It will either heal by fibroid degeneration or else come away with the pus or exudate. In over 80 per cent. of the gangrenous cases we find fecal concretions. These are the cases which have had appendix obstruction which caused the appendix inflammation. The nearer the cecum the perforation takes place the more severe the case, as the necrosis may extend to the cecum. The wounds are closed in layers, but all dependence must be placed in silk worm gut sutures which should be so placed as to include muscle and fascia, and must be tied lightly. Too much emphasis cannot be laid on the fact that most sutures are tied too tight, thereby defeating the ends to which they are used.

POST-OPERATIVE TREATMENT.

The dressings are changed as often as necessary. Moist dressings of either saline or 1-2000 bichloride solution are more comfortable to the patient and are always used. For

the first two or three days the drains are left undisturbed. The gauze drain has served its purpose after a few hours; it is however easier removed after forty-eight hours. The tubes are withdrawn about one-half inch every day or two, until their removal is completed on the eighth or tenth day.

The head of the bed is always elevated a few inches; the patient is encouraged to lie on his right side. Saline or tap water is given by drop method with the McLean apparatus and continued until all symptoms improve. We have used pituitrin in over seventy-five cases with good results. We give one ampule every six hours for three or four doses. Usually in twenty-four hours the patient is allowed small quantities of water and tea which is increased with improved symptoms. These cases will seldom need more than a dose or two of morphine and little of this should be given as it causes gas distension. Small doses of codeine are better. Small enemas are given when necessary. It is best not to give cathartics for several days.

OPERATIONS FOR DIFFUSE PERITONITIS CAUSED BY APPENDICITIS.

These may be classed into early and late operations. By early operations we mean those performed while the patient is in fair condition, not in a state of collapse; and late operation, when the patient is in a most distressing condition with all the symptoms attendant upon such a condition.

By proper rationale many of the first class of cases will recover, while of the latter many will die. These late cases are always the result of some one's indifference, neglect or ignorance.

In all such operations the patient is battling for life as he is in peritonitis. All operative measures must be undertaken to conserve his strength, to lessen infection and to prevent shock. The operation should be performed in the quickest possible manner that no time be lost on account of improper preparations on the part of the surgeon's assistants or nurses. A general anesthetic should never be given without first passing the stomach tube. A few doses of morphine and atropine twenty minutes before operation will lessen the shock. All such operations in adults can and should be performed with local anesthetic such as eucain, $\frac{1}{2}$ of 1 per cent.; if ether is used at all, only a small amount will be necessary. All operative measures should be completed in a very few minutes. Careful after treatment means much to these patients. In cases with marked distension, cyanosis, cold extremities, subnormal temperature, etc., if operation is performed, while in such condition, practically all will promptly die. If these patients have gastric lavage, rectal stimulation, morphine, some become safe cases.

COMPLICATIONS FOLLOWING OPERATIONS FOR GENERAL PERITONITIS.

Ileus, Thrombosis, Embolism and Secondary Abscesses.

The most frequent and dreaded complication is ileus. Whether accompanied or not by mechanical obstruction or due to the attending peritonitis, the treatment is the same, gastric lavage; and if this condition is not soon relieved, early enterostomy. This latter measure is life saving and should not be deferred until too late. We advocate and are in the habit of doing enterostomy at the time of operation, in the worst cases, and we believe that many lives have been saved by this measure. A general anesthetic is never necessary and should not be used for this operation, nor should search be made for any particular segment of bowel. The first distended loop is picked up and a small drainage tube inserted which is fastened in by a catgut suture. One is surprised at the amount of yellowish material that will escape.

After the enterostomy it is very important to re-establish the blood-pressure by intravenous or subcutaneous saline. Nourishment may be given freely after such enterostomy. The enterostomy tube is usually removed in from forty-eight to sixty hours and not infrequently the bowel will heal without further operation.

Death occurs also from thrombosis and embolism. At present we cannot avoid these formidable complications. If taking place in the larger mesenteric arteries or veins or as pulmonary metastases they are usually fatal. We operated successfully on one case of pulmonary abscess caused by embolism in this series of cases.

Subphrenic abscess can be detected and drained with good results. Other secondary abscesses such as those low in the pelvis may need drainage through the vagina or rectum. One should never neglect to examine the rectum in cases where the symptoms of secondary abscess are not found by ordinary abdominal examination. In this series of cases there were four appendicular abscesses opened through the rectum, all with good results. It is not necessary to insert rubber drainage in these cases.

REPORT OF CASES.

During the last eighteen months the number of cases of appendicitis operated upon by Dr. Angus McLean and the writer was 492. This does not include 168 appendices removed during the course of other operations. Of this number 332 were in cases where the infection had not extended beyond the appendix, and no drainage was used.

There were 160 cases of local and general peritonitis, eight of which were practically moribund at time of operation.

The mortality in the clean cases was two, or

6/10 of 1 per cent. One case died from hemorrhage, the only case we ever lost from hemorrhage, and one case from delirium tremens.

The deaths following in the 160 cases of local and general peritonitis were sixteen, five of whom died within twenty-four hours after the operation. Ten of the twenty-five cases of general peritonitis had enterostomy, with seven recoveries.

DISCUSSION.

DR. KENNEDY, Detroit: The paper you have just listened to was exceedingly interesting and instructive. There are one or two points Dr. Brooks has made which I would like to emphasize. First, the question of diagnosis. I had hoped that Dr. Brooks would have said that in the majority of cases the diagnosis can be made from three symptoms: pain, nausea, and vomiting, and local tenderness and muscular rigidity. In my judgment 90 per cent. of appendicitis cases can be diagnosed by these symptoms, and they always occur in the above order. You never get nausea and vomiting before the pain, and you never get local tenderness and muscular rigidity before nausea and vomiting; the three always occur in that sequence.

Now, as to treatment. Appendicitis is absolutely and essentially a surgical disease; no medicine or other method has or ever will cure a case of appendicitis. You can get relief or tide over the case, but you must remove the appendix and nothing but surgery will do it. Even Dr. Osler, in his last edition, says that appendicitis is a surgical disease.

Making the patient comfortable until he can be brought to the operating table, and when is the time to operate? I believe the time to operate is now, as soon as a diagnosis is made. Someone has said, and perhaps it is rather harsh, that if the case has been under the observation of a physician from the beginning, and in operating pus is found in the abdomen, then the medical man who attended that patient is guilty of mal-practice. But I do agree with Dr. Murphy when he said that cases that come to the operating table and pus is found outside of the appendix, that is evidence that the case has not been properly treated, so I say the time to operate is as soon as the diagnosis has been made, with exceptions that have been made by Dr. Brooks. As a matter of fact, statistics show that in cases of appendicitis operated on within twenty-four hours the mortality is less than one per cent. If you wait for four or five days it jumps to 15 or 20 per cent., so I say that all cases of appendicitis are surgical and it is important to operate as soon as possible.

DR. GEORGE, Ann Arbor: I desire to endorse most heartily the paper of Dr. Brooks, and the statement in particular with regard to the transportation of cases of acute appendicitis to some distant hospital. That is one of the most glaring mistakes that have been made. Patients should not, in my opinion, be moved a distance of one or two hundred miles from

the place they were taken sick, to be operated on by a surgeon, and I believe the mortality in acute cases is due to this transportation. My form of treatment is to keep the patient absolutely quiet until they can be operated upon, and this idea of transporting the patient across the state is very foolish. If the attending physician can't do the operating himself, telephone for the surgeon to come and operate, but don't move the patient, as his chances for recovery are much better if operated on at home with a good, competent nurse in attendance. I am speaking of the patient's chances.

About the hot water bag. The old treatment was the ice bag, but I am much opposed to it, and I consider if anything is used the hot water bag should be in preference to the ice bag, as it removes pain as much as the ice does and patients are much more in favor of it.

With regard to the use of morphine in these cases. Under the teachings of my master, we were always opposed to morphine. He only used codeine. The danger of paresis of the bowels is greater with morphine than with codeine. Morphine is all right, if used with the greatest caution.

Another point is that regarding the removal of the appendix in acute cases. Some surgeons advocate the removal of the appendix in all cases but I believe simple drainage is better in acute cases if the appendix cannot be quickly removed.

DR. REYCRAFT, Petoskey: I do not believe the man who has trouble in appendicitis cases is the man who said the time to operate was at once. That is the best advice we have had this morning. I would not wait for laboratory methods to diagnose my cases. I think the best thing to do, if there is a doubt in your mind, is to cut down and find out what the trouble is. I would rather do that in twenty cases than to be guilty of losing one case because I didn't try to find out. I do not believe in starving a patient and bringing him to the operating room weak, because of lack of nourishment. I believe the patient's nourishment should be kept up.

I have operated considerable myself and only in three cases have I inverted the appendix stump. You can tie it off with simple cat gut ligatures and it is as good as anything you would want. I am opposed to inverting the stump at any time. How could you invert a stump that had become thickened by inflammation? I think the very fact of inverting the stump scares more medical men out of operating than anything else.

DR. ATTRIDGE, Port Huron: The only comment I have to make is that, it seems to me, some surgeons take themselves too seriously. They would have you think that in accordance with the symptoms given you can always say it is appendicitis. I have heard eminent surgeons say this same thing. I have seen men who always want to operate. Those of us who are more particular about blood counts find we do not have to operate in all cases, as sometimes there is congestion and given a little time it will pass

away and an operation is not needed. I believe in taking a little time to have the blood work done will pay us.

DR. RAMSDELL, Manistee: I agree with Dr. Brooks and enjoyed his discussion. If one of the doctors says he feeds patients before an appendicitis operation, he has something on me. I never saw a patient starve to death. If he is given plenty of liquids he is all right. While I do not wish to be a convert to feeding my patients, still it is something new to me to feed patients before an operation.

DR. LAWBAUGH, Calumet: I have practiced medicine for the last forty years and when I began the practice of medicine appendicitis was hardly known. I must say that I believe appendicitis is essentially a surgical disease and the sooner you get the appendix out the better it is. If it is possible to operate during the first twenty-four hours it is the best thing to do. I believe there is a time when you should not operate as well as when you should.

DR. J. W. VAUGHAN, Detroit: I want to make a few remarks in defense of the general practitioner. It seems to be the general consensus of opinion that in many cases where the appendix is ruptured the physician has been negligent. While the fact is that very often the physician never sees the patient until after the rupture has occurred, as a patient has probably gone about his work for three or four days

with a slight pain, and has never consulted a doctor until the pain became acute. That class never get to you until the rupture has occurred. With regard to ice and hot water bags. I prefer the hot water bag. It does reduce the amount of gas.

DR. BECKMAN, Rochester, Minn.: I congratulate Dr. Brooks upon his paper. I am glad to see that he is perfectly honest, as I am always a little suspicious when I hear of a series of four or five hundred cases of appendicitis without any deaths. It seems to me we are agreed on the fact that when it is possible to remove the entire appendix, it is the proper thing to do, but it is not always possible to operate immediately. If we believe at all in modern methods we must know that nature takes care of an infection better if that part is placed absolutely at rest and our treatment should follow along that line. We must avoid giving cathartics because they prevent the intestines from being at rest. We must keep the stomach empty because it does the same thing. We have all learned what washing the stomach will do for infection of the abdomen.

It seems to me the ice bag is more efficacious than heat, because it retains the coldness while the hot water bag is apt to get luke-warm unless watched carefully. It puts the parts at rest and relieves the pain in most cases. If the stomach is kept empty and an ice bag applied it is not necessary to give morphine.

PROPAGANDA FOR REFORM.

Digalen Omitted From N. N. R.—In view of increased extravagance regarding the claims made for Digalen by the Hoffman-LaRoche Chemical Works the Council on Pharmacy and Chemistry decided to investigate the present eligibility of Digalen. Examination demonstrated that the asserted presence in Digalen of "amorphous digitoxin" was not substantiated by evidence, that Digalen and Digalen Tablets were not constant in composition and action and that the claim that Digalen causes less gastric disturbances than digitoxin was unfounded. While the manufacturer promised to hold the claim that Digalen contained "amorphous digitoxin" in abeyance, they refused to concede the variable composition of Digalen and reasserted that Digalen was less liable to cause gastric irritation than other digitalis preparations. In view of the overwhelming evidence that Digalen is variable in action and in composition and that it produces the same gastric disturbances as other digitalis preparations, the Council voted that Digalen and Digalen Tablets be omitted from N. N. R. (*Jour. A.M.A.*, Sept. 5, 1914, p. 881).

advertise this product as a laxative and state it to be "purely mechanical in its action" they still mingle with the new ones the old claims of "tonic and reconstructive merits" and thus attempt to perpetuate the erroneous belief that the preparation has nutritive value. As to the identity of the petroleum product contained in the preparation, regarding which the advertising circulars make contradictory statements, the A.M.A. Chemical Laboratory reports that this has all the properties of soft yellow petrolatum (*Jour. A.M.A.*, Sept. 12, 1914, p. 962).

Dose of Diphtheria Antitoxin.—While 3,000 units, the dose given in the Pharmacopoeia, probably is a sufficient dose in many cases, this quantity is not enough to satisfy the factor of safety. There is a growing opinion that no case of diphtheria should receive less than 10,000 units as the initial dose (*Jour. A.M.A.*, Sept. 5, 1914, p. 873).

Antiseptic Action of Hexamethylenamin.—The former opinion that hexamethylenamin possesses antiseptic action independently of the liberation of formaldehyde, was an assumption not founded on reliable experimental evidence. The recent investigations of Burnam, Hanzlik and others have shown that its action as an antiseptic depends on the decomposition into formaldehyd and ammonia which occurs only in an acid medium (*Jour. A.M.A.*, Sept. 12, 1914, p. 962).

Angier's Emulsion.—A report of the Council on Pharmacy and Chemistry points out that when Angier's Emulsion, Angier Chemical Co., Boston, Mass., was first put on the market it was advertised as a "food-medicine" and an "Ideal Substitute for Cod Liver Oil." Although the manufacturers now

TRANSACTIONS

OF

Southwestern Michigan Triological Association

Stated Meeting, October 5, 1914
Flint, Mich.

President E. J. BERNSTEIN, in the Chair
Reported by WILFRID HAUGHEY, Secretary

Reading of Paper

INTRANASAL OPERATION FOR DRAINAGE OF THE LACHRYMAL SAC.

W. G. BIRD, M.D.
FLINT, MICH.

In selecting the subject for this paper, I have in mind the unsatisfactory results obtained in many of my patients and those reported by others, from the treatment of diseases of the lachrymal sac and duct, by the methods we have been using. We have never been sure of our results and, I believe I am safe in saying, that our failures have been more numerous than our cures.

Here I think it advisable to review shortly the anatomy and physiology of that part of the lachrymal apparatus concerned in giving drainage to the tears and secretions from the eye. The puncta lacrimalia situated one in each lid border at the inner canthus of the eyes, upon small elevations the lachrymal papilla form the orifices of the canaliculi lachrymalis. These, starting from the puncta, run vertically for a short distance then they bend at right angles and become directed toward the lachrymal sac. Into this they empty, either separately or after being united to form a short common trunk. The lachrymal sac lies at the inner angle of the eye, in the cleft which the lachrymal bone forms for its reception. The lachrymal bone bounds the sac nasally, while in front and temporally, it is enclosed by the two branches of the palpebral ligament. Beneath the anterior branch of the ligament, the frontal process of the superior maxillary bone unites with the lachrymal bone, and this is the point attacked in the operation I am about to describe. At the spot where the cleft of the lachrymal bone merges into the bony canal, the lachrymal sac passes into the nasal or lachrymal duct. The point where this occurs constitutes the narrowest part of the whole lachrymal channel and is, therefore, particularly liable to pathological constrictions or strictures. From this point, the lachrymal duct passes downward, backward and outward, and empties into the nasal fossa below the inferior turbinate bone. The mucous membrane of the lachrymal sac and that of the lachrymal duct, is one continuous whole; there is, therefore, no sharp dividing line between these two structures. They are mainly distinguished by the fact that the lachrymal sac lies against the bone at one side only, and everywhere else is free, while the lachrymal duct is enclosed on all sides by bony walls. It follows from this, that in engorgement of the lachrymal channels with fluid, it is only the lachrymal sac which is distended so as to appear

as a visible swelling in the inner angle of the eye. The lachrymal duct cannot be distended, on the contrary it is the favorite seat of constriction, which, again, do not appear in the lachrymal sac. The formation of these constrictions is facilitated by the fact that a dense plexus of wide veins, like the venus plexuses beneath the mucous membrane of the turbinate bodies, is interposed between the mucous membrane of the lachrymal duct and the bony wall. Swelling of these veins alone, is sufficient to contract or to close entirely the lumen of the duct.

The conveyance of these tears through the puncta into the lachrymal sac is effected by the act of winking. The tears accumulate in the lacus lachrymalis, into which the puncta dip. Then a winking movement takes place, the fibers of the palpebral portion of the orbicularis contracting. These fibers spring from the internal palpebral ligament, and when they contract, draw the ligament away from the lachrymal bone. The wall of the lachrymal sac being connected with the palpebral ligament, is drawn along with it so that the lachrymal sac is dilated and the contents of the canaliculi are sucked into the sac. The conveyance of the tears from the sac into the nose, is affected by the elasticity of the sac. In pathological conditions in which the sac has lost its elasticity, we observe that the conduction of the tears is arrested, even though the nasal duct is completely pervious. This, I am sure, has happened in several of my cases.

The indications for the intranasal operation, is stricture of the lachrymal duct with any of the following complications: Dacryoblenorrhoea, dacryocystitis, phlegmon, epiphora, and fistula.

The intranasal route for relief of dacryostenosis, was suggested as long as 1792 by LaForest, but no cases reported. From 1892 to 1906, Caldwell, Passow, Okuneff, Toti, and Polyak, reported cases operated on through the nose by first removing part of the inferior turbinate back of the opening of the lachrymal duct and attacking the stricture from below. Strazza, in 1904, first opened the duct by the same methods, but chiseled away the bone from the opening of the duct to the lachrymal sac and cut away sac. J. M. West of Berlin, I believe, to be the first to do the intranasal operation where the inferior turbinate was not removed or the lachrymal duct opened, and in 1910, reported seven cases, February 1913, 90 cases, April, 1913, 119 cases, and last July, when I was in Berlin, he had performed over three hundred of these operations, which he has named, rhino-dacryo-cystostomy.

The technic of the operation as described, is that used by West, to whom I wish to give due credit.

Thoroughly cocaine the lateral wall of nose and anterior end of middle turbinate with applications

of 10 per cent. solution of cocaine, followed by 1/1000 solution of adrenalin chloride or the cocaine adrenalin mud, as used by Freer in his intra-nasal operations. If the anterior end of the middle turbinate is hypertrophied, remove the pendulous portion which will usually give room enough so that the landmarks of the lateral wall may be seen. Start the first vertical incision, A D, in the mucous membrane just in front of the anterior attachment of the middle turbinate and continue towards the floor of the nose for a distance of about one centimeter. Make the second incision, B C, about five or six millimeters in front of and parallel to A D. The space between these two incisions should be directly over the lachrymal sac. The third incision, A E, should start at the upper end of A D and con-

with mallet, which will usually drive end of instrument through the bone. By pressing the handle of the chisel toward the lateral wall of the nose with a prying motion, the bone in front can be broken away. Pass a small lachrymal probe through either canaliculi into the sac and press toward nose. The wall of the sac should now come into view where the piece of bone was removed from the lateral wall. Grasp the wall of the sac with the tooth forceps and make traction; if enough bone has been removed, the whole of the nasal side of the sac should present, so that it can be easily cut away with the long handled knife. Now the probe can easily be passed into the nasal cavity. After this has been accomplished, wash out the sac through the canaliculi with the lachrymal syringe filled with boric acid

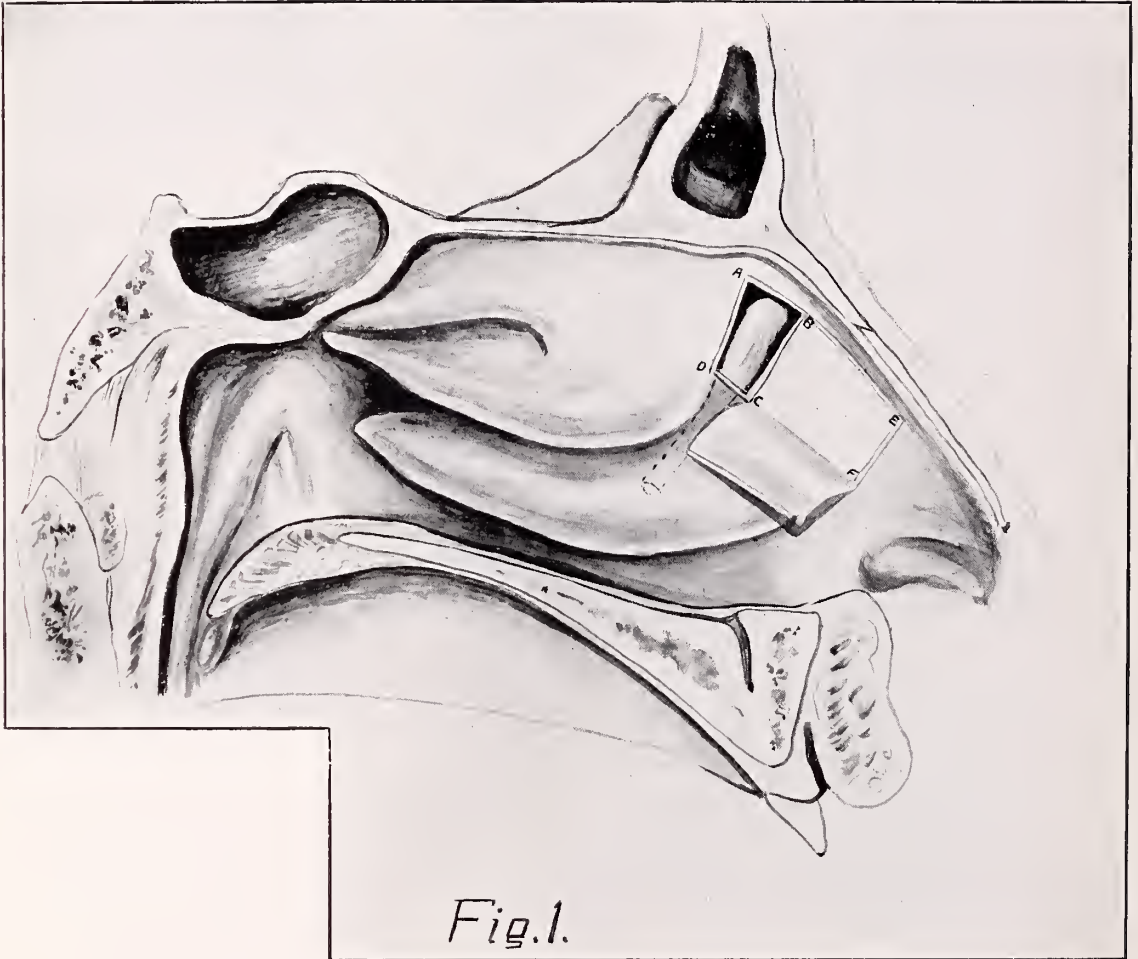


Fig. 1.

tinue parallel to the roof of the nose, bisecting the line B C, near its upper end, and extending to the aperture pyriformis. The fourth incision, E F, should start where the third incision ended and continue along the edge of the aperture pyriformis toward the floor of the nose for a distance of one and one-half centimeters. All these incisions should extend through the mucous membrane and periosteum. Next, dissect the flap, C, B, E, F, loose from the bone and turn it downward out of the way. Make incision number five, which is represented by D C, in cut and dissect the small piece of mucous membrane from the nasal wall and remove it from the nose. Upon examining the denuded surface of the bone, you will find a slight ridge on the frontal process of the superior maxillary, just anterior to its attachment to the lachrymal bone. Place the curved chisel against the bone at this ridge and have assistant strike chisel two or three taps

solution, to remove all blood clots from the nose and replace flap of mucous membrane, C B E F. Pack nose lightly with strips of gauze, which should complete the operation.

It is advisable to caution the patient against blowing the nose for a day or two to avoid an emphysema. The gauze should be left in place three days, allowing it to absorb the boric acid solution that should be syringed through the canaliculi once daily.

When the gauze is removed from the nose, on the third day all epiphora should cease, but it is advisable to continue irrigation with the lachrymal syringe for a few days longer.

Where there is a marked deflection of the nasal septum, it would be good judgment to do a submucous resection first, and if the nose is extremely narrow, can remove a small amount of bone from the edge of aperture pyriformis; but it is surprising to see the extra space derived from the turning

down of the mucous membrane flap, alone. When making the opening through the bone, precaution should be practised against starting too far back and driving the chisel through the orbital wall behind the lachrymal bone. If this accident should occur, the orbital fat would at once present and it is very apt to become infected, especially when operating on cases of phlegmon of sac.

If at any time after the operation, you wish to be positive that the opening made in the sac is patulous, place a piece of absorbent cotton in the nasal cavity over the region of the sac and a few drops of fluorescein or argyrol solution in the eye. The coloring matter should be deposited on the cotton in a few minutes from the tears and secretions as they pass onto it from the opening in the sac.

ment has been given, the percentage of failures should be much less. The operation is made painless by the use of the local anesthetic and the shock to the patient is no greater than that from a sub-mucous resection of the nasal septum.

PRESENTATION OF CASES.

Dr. W. G. Bird, presented several patients for examination:

First.—A lady about forty-six, who had suffered for a long time with epiphora, of the right eye. The lower canaliculus had been slit and the upper one still drained, but not sufficiently, and the patient had an accumulation of pus in the sac. It was only with difficulty that a small probe could be passed into the nasal cavity. The Intranasal operation as

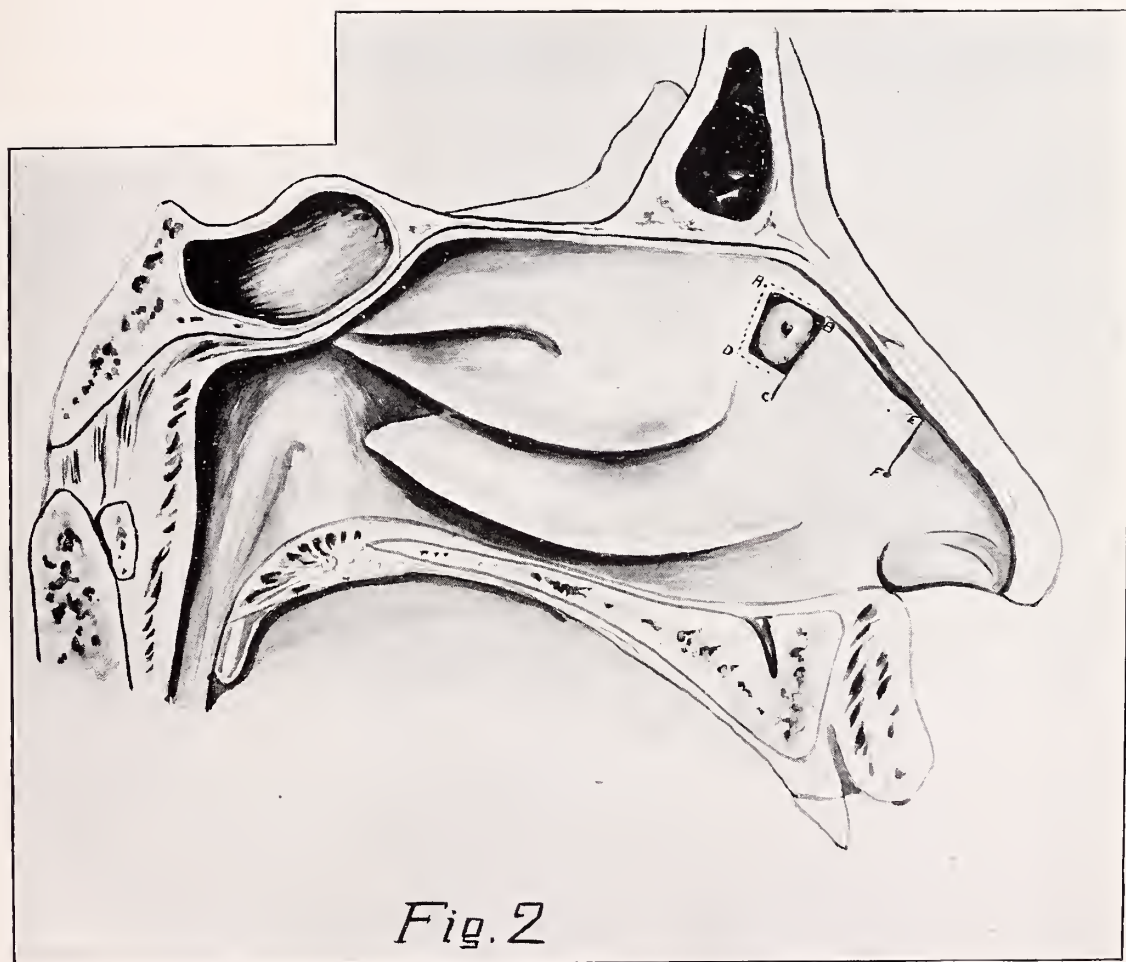


Fig. 2

The advantages of this operation over the methods of slitting the canaliculi probing, syringing, and external operations on the sac, may be enumerated as follows:

1. The shortened duration of treatment.
2. The positive results obtained in nearly every case.
3. Absence of any visible scar.
4. The negative bacteriological findings in the conjunctival culdesac three days after the operation, makes this an ideal procedure for the cure of chronic dacryocystitis, complicated by ulceration of the cornea, or as a preventive precaution preceding any operation where the eyeball is to be opened. Of West's three hundred cases reported, many had been treated for years by the external methods. The canaliculi, cut and torn, and false passages made in several, yet he claims to have cured 90 per cent. In selecting cases where little or no previous treat-

described in the paper presented tonight was done. Patient now has no epiphora, the upper canaliculus being sufficient drain. Solutions washed into the sac pass immediately into the nasal cavity. Operation done two weeks ago.

Second.—Two children from the deaf school showing deposit on the lens, by adhesion, of pigment from the iris, also new formed blood vessels on the anterior capsule. There is no specific history obtainable, but one child has Hutchinson's teeth and the other, other characteristics—scaphoid scapula, and saber tibia.

Third.—A business man who for a year and a half has been having tri-weekly instillations of powdered dionin for the clearing up of an extensive leucoma of the cornea following ulcers. The leucoma has almost disappeared, so much so that vision has returned to 20/30. The eyes are hyperopic and

the patient about 65 years of age. The dionin produces a typical reaction at every instillation.

Fourth.—A child of six came in without the power of speech, a condition of a year's standing. Examination showed many large and small papillomatous masses in the larynx involving the true and false cords and extending into the trachea. Suspension



Laryngoscopy with Killian's gag and an improvised standard. Thirteen papillomatous masses were removed, leaving a very good looking larynx. The child's voice has not yet returned, but the operation was only six days ago.

GENERAL DISCUSSIONS.

Dr. E. P. Wilbur, of Kalamazoo, asked the experience of *Dr. Bird* regarding percentage of cases of interstitial keratitis and what percentage of cases of deafness in the School for the Deaf show a specific history and cause. *Dr. Bird* replied that it is so impossible to secure reliable histories that he could not answer, he having to rely on manifestations, largely, for his histories.

A discussion of the use of salvarsan and neo-salvarsan for interstitial keratitis followed, with the

consensus of opinion that the results are not particularly good, frequently there being no benefit whatever, and especially no benefit in the congenital form. *Dr. Wilbur* has seen a case of the acquired form clear up in four days following salvarsan.

Dr. E. J. Bernstein, Kalamazoo, reported a case of infected trauma of the eye followed by panophthalmitis, enucleation, meningitis and death. A piece of metal had penetrated the eye and some kind friend had attempted its removal. After enucleation the patient ran a subnormal temperature for several days, suddenly having a chill with a rise in temperature from 97 to 104.8 degrees and death in a few hours. Culture from the operation wound was sterile.

Dr. R. D. Sleight, Battle Creek, reported a case of chronic glaucoma in an elderly lady with cataract. She refused trephining or iridectomy, so he cocaineized and slit the cornea with the idea of relieving the tension by evacuating the anterior chamber. In incising the cornea, the anterior capsule was also incised. There has been no pain or discomfort since, and tension is still down. About a year has elapsed.

BUSINESS MEETING.

The minutes of the last meeting were read and approved.

Dr. Bird proposed for membership, *Drs. A. R. McKenny* of Saginaw, *E. V. Riker* of Flint and *John S. Owen* of Lansing. Upon being seconded the candidates were duly elected to membership.

A letter from *Dr. Welsh* of Grand Rapids was read, expressing his regret not to be present and inviting the society to meet with him next month. Invitation accepted.

There were present from our out of town, *Drs. E. P. Wilbur* and *E. J. Bernstein* of Kalamazoo, *John S. Owen* of Lansing, *A. R. McKenny* of Saginaw, *R. D. Sleight* and *Wilfrid Haughey* of Battle Creek. Also *Drs. Paul, Bahlman* and *Randall* of Flint, as guests.

WILFRID HAUGHEY, Secretary.

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NOVEMBER

Editorials

OUR DUTY AS INDIVIDUALS.

Mr. Barbour's address, published in this issue, raises prominently before the profession a question to which most of us have given little thought, i. e. our duty to the public and also our responsibility to our profession in our attitude toward the charge of negligence or incompetence so often made against individual physicians. Mr. Barbour states explicitly the law of liability which requires expert witnesses for the plaintiff in order that any malpractice suit have any standing in court. Without medical witnesses for the plaintiff the judge must take every case from the jury and decide, "No cause for action." Hence, *were all legally qualified practitioners to refuse to testify against a physician malpractice suits must cease, for no case can be proven without some doctor to testify for the plaintiff.*

In considering the advisability of such a "Stand Together" policy due weight must be given to the rights of the public to collect damages for improper or negligent treatment. What the courts call negligence is usually only human fallibility. Why blame another for the very thing we may do tomorrow? A burn from a hot water bag, a stitch or drain overlooked, a needle broken in the tissues, a bandage too tight or perhaps too loose; suit has been brought on each of these grounds. We have had two cases where our attorneys said there was negligence, legally. One of these was settled for a small sum, the other was won before a jury.

Which proves that apparent negligence is not, legally, such until a jury says so. Certainly, in cases like these, we can agree that we should not be blamed for what are really accidents.

In those cases alleging improper treatment there is a debatable ground. It is possible for a doctor to have a hypertrophied conscience and believe it his duty to testify that the plaintiff has been improperly treated. In so doing he states only *his opinion*. There is so little absolutely fixed about the practice of medicine that his opinion may be no nearer right than the other man's is wrong. There may be perfectly legitimate difference of opinion as to treatment and the judgment of the man on the ground is always presumably better than that of the man who does not know the facts or the difficulties in that special case and only theorizes about them. We believe that a pathological examination of a cross section of every case of hypertrophied conscience will show an infection with the bacilli of envy, jealousy or greed for, in the last analysis, every man's duty to himself and family outweighs any abstract public duty. "Self protection is nature's first law." And that a physician's first duty is to protect himself is a fact that cannot be controverted. He best protects himself by protecting his profession. Any man who aids and abets a malpractice suit not only antagonizes his co-workers but directly lays himself open to the same kind of attack, because every successful damage suits means others and he becomes especially vulnerable by having antagonized those upon whom he might otherwise call for support. Infection by the bacillus of envy or jealousy is serious but the worst condition is that due to pure greed. It must be a pathological condition which allows a doctor to testify, for a fee, that a radiograph is *always* necessary in fractures, that impaired function in a shoulder injury is due to improper treatment, that death from chloroform would have been avoided by more careful preliminary examination of the heart, or that with a history of a swallowed nail and a clinical picture of acute peritonitis, operation was not necessary because only the perforation and not the nail was found. Testimony like the above is a part of the court records in many counties of this state and the only justifiable explanation therefor is the desire to earn a promised fee.

Perhaps a case may arise which constitutes actual malpractice from our viewpoint but we have made careful study of all cases arising in this state for the past five years and in the one case where a reasonable doubt arose a jury decided for the doctor. We have a granite lined New England conscience ourselves, but say without hesitation that under no circumstances would we testify against another doctor. We have the highest regard for the rights of the

dear public but when we know that 99 out of every 100 malpractice cases are pure blackmail we are willing to believe that, in the other case, the doctor did his best, which was probably just as well as we would have done, under the same circumstances. Even though, in the hard grind of practice, men overlook something or do a thing one way which someone else might have done differently, they did the best they could at that time, which averages well with the work of the average man. We have overlooked a few bets ourselves and who has not? Why then try to hold the other fellow to a standard which we do not attain ourselves? "With malice toward none and charity toward all" is our motto and we submit it as a good motto for the medical profession.

We are glad that Mr. Barbour has brought this matter so emphatically to our attention although regretting the publicity given a few men. However, he only states facts from court records and asks us to ponder the facts as presented. Certainly the matter is of sufficient importance to the profession of this state to merit careful consideration by each individual who may be called upon to decide his duty in the particular case.

The Medico-Legal Committee have long been trying to pound into the inner consciousness of the individual member the essential fact, so strongly brought out by Mr. Barbour, that *doctors alone are responsible for the many malpractice suits brought against the medical profession*. One out of every hundred of the membership of the Michigan State Medical Society is each year threatened with suit. Collectively we pay enough each year for defense and insurance to enable the Society to pay \$1,000 to the family of every deceased member were the funds used for life insurance instead of defense insurance. Besides the financial side of it there is the worry and anxiety, the antagonism and often bitterness engendered, the unpleasant notoriety and unjust stigma publicly attached to a unfortunate defendant.

If the members of this Society will individually decide to act as a unit and neither aid nor abet civil malpractice suits against any physician there will soon be no more suits brought, for they are usually incited by some doctor and depend entirely for success upon some doctor. While our membership does not embrace all legally qualified practitioners it so nearly does that non-members may be disregarded because an imported unknown doctor has little weight with a jury compared with the testimony of well known local men. In those counties, where the profession are united, few suits are brought because the attorneys despair of winning, but where good men can be persuaded to support the plaintiff, suits easily succeed and are frequent. Mr. Barbour considers it advisable to

carry an Insurance policy, in addition to our defense feature and we grant that in the rare instance where final verdict is rendered adversely it is a fine thing to have. But so far as *defense* is concerned The Medico Legal Committee is stronger than any insurance company for it can get closer to the individual members of the profession who constitute the real backbone of defense.

FRANK BURR TIBBALS.

CORROSIVE SUBLIMATE AS AN ANTI-SEPTIC.

Koch¹, in 1880, conducted a series of experiments whereby he attempted to demonstrate the relative value of those agents that were being employed to destroy all forms of micro-organisms. As a result he declared that bichloride of mercury was the most potent of all. Ever since then this chemical has been advanced as the ideal one and many have been the advocates who place complete confidence in it when desirous of securing aseptic conditions or to destroy the infecting bacteria that are found in suppurative conditions. That such confidence or reliance in this drug is no longer justified has been demonstrated by subsequent investigators. While this fact is known and observed by some, there still remain a considerably large number who follow the principles laid down by Koch and to direct the attention of such to the subsequent findings and secure their reflection thereon is the intent of this editorial.

Harrington² states that a much longer time is required to kill bacteria than recommended by Koch. He also criticises Koch's technic in that Koch used dry threads infected with bacteria and, while admitting that bichloride is more rapid in thus destroying bacteria, it requires a much longer time to destroy them when existing in a moist media. Harrington conclusively demonstrates that it requires fifteen minutes for a 1-1000 solution of bichloride to destroy the bacillus pyocyaneus and five to ten minutes to destroy the staphylococcus. He concludes, as the result of his investigations that: "The bichloride of mercury is a greatly over-rated disinfectant."

Post and Nicoll³ have demonstrated that it requires twenty hours for 1-2000 solution of bichloride to destroy all the streptococci. The findings of others confirm these results and prove that it requires a much longer period of constant exposure to bichloride in solutions of the strength of 1-5000 or 1-1000 than was being

1. Mittheilungen aus dem K. Gesundheitsamte, Vol. I, 1881.
2. Boston Med. and Surg. Journal, Vol. CXLVIII, 1903.
3. Journal of the A.M.A., Nov. 5, 1910.

allowed and therefore its use in a majority of instances is utterly valueless in the attempt to secure asepsis or as a germicide.

The mere dipping of one's hands in a 1-1000 solution for a minute or two is an idle procedure. Allowing a solution in the strength customarily employed to trickle over or in a wound, hoping thus to destroy the micro-organisms is of but little avail. Used in the preparation of an operation field it accomplishes more harm than good. One might better use plain sterile water. To be of value it must exert a constant action for a period of not less than fifteen minutes and up to twenty hours before we can hope to have destroyed these organisms and then we are not certain that tetanus and its spores have been destroyed.

No doubt some will claim that their hands are as clean and sterile and their results are as ideal as those of the men who adopt other methods. This is debatable and the results they have secured, we are forced to conclude, follow their use of soap, hot water and vigorous scrubbing and not bichloride. The immersion of their hands in a 1-1000 solution, from the evidence on record, did not destroy the bacteria. Few, if any submit their hands to a constant immersion of from 15 minutes to one hour.

Bichloride being thus of questionable value, the quest for a more effective agent was made. As a result there have been tested and credited two agents whose action may be relied upon.

Post and Nicoll found that alcohol in 50 or 70 per cent. strength destroyed all streptococci in one minute. That iodine in a 1-400 water solution destroyed bacteria in less than one minute. Senn,⁴ after having caused a series of experiments to be conducted, states:

"The germicidal power of iodine is far superior to that of bichloride of mercury. It was found that the streptococcus required an exposure of fifteen minutes to a 1-1000 solution of bichloride and even then a good growth of streptococci appeared. An exposure of thirty minutes gave no growth. Iodine caused death of the streptococci after an exposure of two minutes to a 0.2 per cent. solution.

"Iodine in 0.5 per cent. solution is amply strong enough for all uses."

By means of improved technic iodine will destroy all bacteria either on the instant of contact or inside of two minutes.

Our conclusions must therefore be that bichloride must be regulated to the past and reliance imposed in alcohol and iodine.

SUGGESTIONS ON THE USE OF THE REFERENCE LIBRARY IN THE PREPARATION OF MEDICAL PAPERS.*

Introduction.—The accumulation and review of medical literature as a preliminary step in the preparation of medical papers is often a perplexing experience, particularly to the younger men of the profession who may, as yet, have had little practice in such work. With the enormous volume of medical literature now being published, it is a heavy task for the skilled librarian, even with her familiarity with the many excellent indices and catalogues, to collect the titles alone of significant literature concerning any particular phase of a topic. What, then, must it be for the young physician who is unskilled in the use of catalogues, who does not readily recognize such articles as may possibly contain valuable material bearing on his subject, and who also may not know the scientific standing of the various journals?

The librarian is conversant with the books and periodicals of the highest standing. She may even be conversant with the subject matter of the articles contained therein, and she is often asked for detailed information regardless of the fact that supplying such details may be quite outside of her legitimate duties. The demand for skilled assistants in the collection and review of papers has resulted in the development of professional reviewers, bibliographers, abstracting bureaus, etc., furnishing data to physicians who lack the training, the time, or the material necessary to collect and make such reviews for themselves. There is need also for the skilled employee of the library, who is familiar with medical literature and who works in immediate association with the physician, aiding him in the collection, selection, and translation of articles, and in making stenographic notes of his abstracts.

Without entering into a discussion of the question as to whether to the librarian, to the professional bibliographer, to the skilled special assistant, or to the physician himself shall be left the task of accumulating and selecting medical literature preliminary to its final critical analysis by the author,—a question which must be determined in each instance by the local conditions,—I venture to make a few suggestions from the editorial standpoint, which may aid in systematizing the details incident to the composition of medical papers.

Reference Lists.—Whatever their motives, most physicians find it necessary as a part of any investigation to acquaint themselves with the methods of previous workers, their facts, and their conclusions, and finally, to select from

*Read before the National Library Association, Atlantic City, June 22, 1914. Reprinted from The Journal Lancet, October, 1914.

4. Surg., Gynec., and Obst., Vol. I, No. 1, July, 1905.

these such as may bear on the solution of their own problems. The first logical step, therefore, is a compilation of a list of titles of papers which may yield the desired information. Perhaps it is not sufficiently well known among physicians that of the numerous indices, catalogues, reviews of current literature, year-books, etc., the most useful are the *Index Medicus*, the *Index-Catalogue of the Surgeon General's Library*, the *Guide to Current Literature* of the *Journal of the American Medical Association*, and the *Supplement to Surgery, Gynecology & Obstetrics*. For periods not covered by these, and for articles from related sciences, e. g., physics and chemistry, of course, other sources, of information must be consulted.

When reference lists are prepared by employees of the library, they should be as complete as possible and be made on standard index-cards. Those references selected by the physician should be copied on standard-size thin cards or on sheets large enough for his notes. Only the original cards should be filed in the library.

Selection of Significant Articles.—When the list of titles has been thus compiled, it will be found to contain references to the work of a few known men and to that of many unknown men whose articles have been published in a few journals of unquestionable standing and in many of very questionable standing. Thus, oftentimes, a large number of the references may be wholly ignored; and, in any event, the articles in standard periodicals by recognized authorities should be consulted first.

Of the approximately sixteen hundred medical journals now published, a very small number contain the original reports of the bulk of the really important work done by the medical profession. The occasional worthy article found in the remaining journals is usually a simultaneous publication, a series of abstracts, or the report of an isolated case. While it may sometimes be of interest to the physician to read articles composed principally of uneritical reviews, he should accept their conclusions with discretion, since careful scrutiny very often reveals in them inaccuracies in data and reasoning. The harmful custom of quoting such articles and passing them on, frequently diverging further and further from the truth, as well as assisting in the perpetuation of their original errors, cannot be too strongly condemned. As a rule, the study of a few original articles containing in minute detail the result of painstaking investigation and accompanied by good illustrations, is worth more than the hasty review of innumerable inaccurate compilations.

Thus at the outset the attention of the physician may be readily concentrated upon a relatively limited number of articles, many of

which should be found even in the small medical library. Frequently, however, some of the articles included in the list which seem to be significant, will need to be obtained from other libraries, from the authors, or from publishers direct. Further, when these articles are finally obtained, many of them must be translated into English. The physician who has not actually experienced the difficulties of accumulating his own reference literature will find it hard to be patient with the attendant delays. Fortunately, the courtesies so generously extended by the greater medical libraries to those of us in charge of smaller libraries do much to reduce these delays.

Abstracts and Translations.—What shall be said concerning the use of abstracts made by bureaus for a specific topic? While there are fewer objections to their use than to the use of abstracts prepared for general information only, and while they may be sufficiently accurate for the collection of statistical data, the fact must be borne in mind that, aside from a personal interview with the author, nothing can give so true a conception of his interpretation as a careful study of the original report. Needless to say, if material is obtained through the medium of abstracts only, it should not be incorporated into papers without stating its immediate source.

The use of translated abstracts is, of course, even more to be deplored than the use of abstracts of English articles. Literal translations of entire articles, however, are trustworthy, and quite necessary when the physician is unable to read the language in which the original report was published.

Order of Study.—Physicians sometimes do not take into consideration the fact that the order of development of a subject is rarely the order in which it should be studied. In general, the physician whose experience has not already taught him another routine should review the more recent articles first. In this way, he not only quickly acquaints himself with the contemporary point of view concerning the subject in hand, but, also, he may find references to other valuable data bearing on the topic, but reported under titles giving no clue to their relationship, and therefore not previously included in his reference list.

Notes and Bibliographies.—The physician should make his notes and reviews on standard cards or sheets provided for that purpose; and they should be preserved at least until his article is completed and the bibliography verified. Completeness and accuracy in notes and bibliographic reference will save a great deal of time and trouble for the author, as well as for the editor.

In the final list of references for publication,

the quotation of authorities not personally reviewed, and the inclusion of direct references to them, are to be avoided. This unfortunate practice which has grown up from thoughtlessness on the part of writers is not only time-wasting, but also misleading, since it conveys the impression that the author has based his conclusions upon the study of the original articles. An author who feels it necessary to refer to work of which he has seen only a review, should always make this clear in the body of his paper.

Study-tables.—Whenever literature is reviewed in a reference library, study-tables should be provided in the stack-room, permitting ready access to the shelves for immediate consultation of articles other than those already selected, but which may have some bearing upon the subject. Where space permits, it is best to assign a table to each worker of which he may have exclusive use for an extended period. In addition, when possible, it is desirable to place tables in separate rooms or alcoves, giving privacy for the dictation of papers, abstracts, etc.

The preceding suggestions are based upon several years' experience in a small library used freely by a limited number of physicians in the preparation of medical papers. While they may not be of interest to the trained investigator who has already developed a system of work, they may prove of some value in assisting the young author who also recognizes the importance of a definite system in his preliminary literary investigations. They may be summarized as follows:

SUMMARY.

1. There is a demand for skilled assistants to collect and review medical papers. Some of these should be employees of the library who are familiar with medical literature, who are skilled stenographers, and who work in immediate association with the physician.

2. The first step in the review of medical literature is the compilation of as complete a bibliography as possible from the current indices, catalogues, etc., these to be on standard cards, which should be preserved for use in subsequent investigations of the same topic.

3. Original articles in standard journals by well-known authorities should be read before reviews and abstracts.

4. New or final conclusions should not be drawn from abstracts and reviews alone.

5. So far as scientific medicine is concerned, the thorough study of recent literature is of more importance than the random review of early literature.

6. Notes and references should be systemat-

ically and accurately made on standard-size cards or sheets, which should be preserved by the physician at least until his paper is published.

MRS. M. H. MELLISH
Mayo Clinic, Rochester, Minn.

Editorial Comments

Society meetings have universally been resumed after the summer vacation. Your membership in these component units will be as valuable as you choose to make it. Are you intending to assume a listless attitude or have you decided to actively participate in every meeting? Certainly you must have perceived that every active and successful doctor is a working member of his county society and is aware of the value his society is to him in his daily work. It behooves us all to remain in the active ranks and thus increase the value of organized activities. Attend the next six meetings and if in the end you feel that you have not been personally benefited we will agree to reward you for the time you feel you have lost. Resolve now to permit only personal infirmities to cause you to be absent.

Not a single member should fail to read the article in this issue on "The Origin of Malpractice" by Herbert V. Barbour, Esq., of Detroit, who is a member of the legal firm employed by our Medico-Legal Committee. It is a paper that merits the consideration of every doctor, as does also the editorial on the same subject. We recommend that the officers of each county society make it a point to draw their members' attention to this paper at their very next meeting. It may well be discussed in one of your meetings. Read it, ponder over it, observe its recommendations.

Hospital efficiency is being demanded to a greater extent by the public and the profession. A few beds, an operating room, a few officials and nurses, under a name and all more or less dominated by a Board of Managers or trustees composed of lay individuals wholly without a knowledge of hospital administration or economics ought speedily be classified as a class "D" institution. The time is not far distant—but a few years—when all institutions posing as hospitals will be inspected and properly classified by a committee of constituted authority and thus enable the public and the profession at large to differentiate between the properly equipped hospital and one that is not capable of rendering efficient service to its inhabitants. Hospital administration has become a science and demands trained officials as well as trustees

abreast with the principles of administrative methods in order that the greatest good and effective management may be accomplished.

At a recent meeting of the American Hospital Association, held in St. Paul, Dr. Chas. H. Mayo of Rochester read a paper on: "The Hospital as an Educational Institution." The paper is published in the October issue of *The Modern Hospital*. It should be read by everyone connected in any way with a hospital. We are publishing herewith extracts of the paper that are of a pertinent nature:

"Considering what has been done for the insane, the future must establish proper hospitals for the cure of drug habits, morphine, cocaine and the like."

"Since the state licenses places for the destruction of man, it should also control places designed to help him."

"Hospital reports are mostly worthless—usually given over to self advertisement. There should be uniform reports, inspected regularly by an officer of state. Reports should tell the truth about the physician and surgeon, as well as about the disease and the patient."

"Few questionable procedures are made on the external body; they are mostly hidden and—often buried."

"If hospital reports were right, and if trustees were capable and active, they would weed out incompetent officials and staff members."

"Hospitals are seldom conducted on good business principles. Some members of the board are placed there because they will contribute or are good money getters, and others because of influence. Too often these members are like business directors who don't direct."

"When hospitals can be standardized and a Taylor system of efficiency of management be secured, a wonderful improvement will ensue."

The foregoing few quotations indicate the trend of events. It behooves many institutions to raise the standard of their hospital.

The Medical Department of our University has already classified many hospitals and advises its graduates as to which hospital they should apply for internship and which they should avoid.

Again, some Registration Boards are already demanding that a graduate shall have served one year's internship in a recognized hospital before receiving a license to practice. The Council on Education of the A.M.A. has recommended that this requirement be universally adopted in 1919.

What does this mean? Simply that our hospitals must raise their standard in order that they be recognized and be enabled to secure internes whose service in these hospitals will be recognized when they appear before registration boards for license.

In instances, more than a year will be required to bring about added efficiency and improvements. It behooves, then, those charged with hospital administration to at once set about to rectify present palpable deficiencies.

When in need of new equipment or supplies please confer your patronage to our advertisers. We ask you to observe this request if you are desirous of increasing the value of this, your *Journal*. Will you not endeavor to constantly observe this request? Business depression has curtailed our advertising receipts. To maintain the advertising we now hold and to secure new contracts we rely entirely upon your support. We cannot hope to receive advertising contracts unless our members make their purchases from our advertisers. Will you not now write those who are advertising with us and tell them of your appreciation—better still send them an order—at any rate let them know that you read the advertising section of each issue.

The State Board of Registration, through our October News Column, imparted information as to how the medical laws of Michigan were being enforced. This Board will investigate and prosecute every violation provided, you will but assist them to a reasonable extent. Your Society should have a special committee charged with this duty. Thus will the Board be enabled to carry on effective work to a greater extent. Someone must make complaint.

In the treatment of many ailments that fall in what we sometimes are pleased to call the "chronics" class, the difficulty exists in inducing these patients to follow our advice and instructions minutely. Habits of living are hard to break when the attempt is made midst old environments. It is therefore desirable to send these patients to established institutions in order that they may be well started in that mode of living that will best aid to secure their recovery. This is what has caused the establishment of those institutions known as sanatoriums, sanatoria, rest cottages, etc. There are many such institutions conducted most ethically. In our advertising pages you will find a most dependable list. May we not ask you to remember them and confer your patronage to them. They merit your interest and support.

The following county societies merit large credit marks for having a majority of their members attend the State Meeting.

Clinton—22 members—17 or 77% attended.

Ionia—21 members—13 or 62% attended.

Shiawassee—30 members—18 or 51% attended.

Eaton—30 members—16 or 50% attended.

We understand that all four of these societies made special effort to secure the attendance of their members at the Lansing Meeting. They merit full praise for their excellent showing. It is to be hoped that a large number of county societies will emulate this example in 1915.

After a continuous service as secretary of the Moncalm County Medical Society for twenty-five years, Dr. H. L. Bower, Greenville, declined re-election, and the members fittingly recognized the Doctor's faithful service by electing him president. We doubt if anyone in the State can point to such a record of continuous service. We are indebted to Dr. Bower for the services he has thus efficiently rendered to organized medicine.

Under our Society News in this issue there will be found the report of the Annual Meeting of the Tuscola County Society. The statistical report of the secretary is interesting. This organization has a membership composed of 100 per cent. of the eligible members in its district. It is the only society in the state able to boast of this fact, and is deserving of great credit. What can be done in Tuscola County can be done elsewhere. It requires a little work on the part of society members—work that should be undertaken as a whole and not by a few members. We sincerely hope that Tuscola's precedent will be attained by a goodly number of our organizations this coming year. It is also our wish that Tuscola's next annual report will reveal an attendance average of at least 75 per cent. Mere membership is not sufficient—activity in society work should accompany one's membership.

County secretaries are urged to send in monthly reports of their meetings. The object of publishing these reports is twofold: To place on record the work that is being accomplished by your society; to enable our entire membership and especially the officers of component societies to observe what their sister organizations are doing and thus gain inspiration and new ideas for conducting the work and activities of their own societies. In view of this we trust that every secretary will lend his co-operation and send us each month a complete report of the transactions of his society.

Twenty-five hundred and sixteen copies of the October issue were mailed to bonafide members and paid subscribers. This we believe is the high water mark for our publication. With a little effort directed toward securing the affiliation of those who still remain classified as non-members, but who should be members, the 3,000 mark can be reached in the next six

months. Will you not endeavor to secure this increase by inviting your neighbor, who is not a member, to attend your next meeting as your guest? Having done so, then induce him by a heart-to-heart talk to apply for membership. We want you to publish to our sister states before the next June meeting of the A.M.A. that Michigan has an organization composed of 90 per cent. of its eligible physicians. It can be accomplished if we will turn in and devote but a few hours to the work. Will you be the one to undertake starting the movement in your county?

Dr. Peterson, President of our State Society announces the appointment of the following committees:

COMMITTEE TO ADOPT A UNIVERSAL FEE
SCHEDULE.

C. B. Stockwell, Port Huron, Chairman.
B. M. Davey, Lansing.
F. C. Warnshuis, Grand Rapids.

COMMITTEE TO SECURE ESTABLISHMENT OF
MEDICAL LIBRARY.

R. R. Smith, Grand Rapids, Chairman.
H. M. Rich, Detroit.
A. S. Warthin, Ann Arbor.

Deaths

Dr. F. M. Thoms, one of Lansing's most prominent doctors died unexpectedly Tuesday morning, October 20. Dr. Thoms had practiced medicine in Lansing since 1891 and had been a member of the Michigan State Medical Society since 1906.

Dr. Charles H. Lewis, the oldest practicing physician in Jackson died October 8. Dr. Lewis had practiced medicine in Jackson since 1866. He is survived by a widow and two children.

Dr. Geo. W. Robb, of Flushing, died Sept. 14, 1914, of pernicious anemia. Dr. Robb was born in London, Ont., October, 1856. He was a graduate of the Detroit College of Medicine and Surgery and has practiced in Flushing since 1898. Besides his wife Dr. Robb is survived by three children.

Correspondence

Lansing, Sept. 23, 1914.

Dr. F. C. Warnshuis, Secretary Michigan State Medical Society, Grand Rapids, Mich.

Dear Doctor:

On my recent return home from Chicago I found your letter in waiting informing me of my election

to honorary membership to the Michigan State Medical Society at the last meeting of the Society held in this city.

The Society has always been kind to me far beyond my deserts, and for this renewed expression of confidence and good will of the Society I tender you my most cordial but unworthy thanks.

Yours truly,

GEO. E. RANNEY.

September 19th, 1914.

Dr. F. C. Warnshuis, Secretary-Editor,

Michigan State Medical Society, Grand Rapids.
Dear Dr. Warnshuis:

Your favor of the 16th inst. informing me of my election to honorary membership in the Michigan State Medical Society came to me as a great surprise.

I am deeply grateful for the high honor conferred on me by our State organization and though I have been compelled on account of my health to retire from active practice and to give up all active work in our medical societies, yet I am constantly with you in spirit.

I wish to take this opportunity to congratulate the Michigan State Medical Society on its high standing and the excellence of its *Journal*. It is indeed a great honor to be an honorary member of such an organization.

Yours very truly,

C. BONNING.

Ann Arbor, October 8, 1914.

Dr. Frederick C. Warnshuis, Secretary State Medical Society, Grand Rapids, Michigan.

My Dear Doctor:

The arrival of this month's *Journal* reminded me of a broken promise which I made to father. On my return from the State Meeting, father, who is not quite up even to simple correspondence, asked me to write an acknowledgement to you of the receipt of his notification of election as an honorary member. It was a tribute and honor which he did really much appreciate, and were he himself he could voice that appreciation much better than I can for him. However, he thanks you, and through you the Society for the very kind remembrance of him.

Very truly yours,

J. F. BREAKEY.

State News Notes

The Barry County Health Week that is to be held during the week of Nov. 15-21 has announed the following list of speakers:

Governor Woodbridge N. Ferris, who will speak on the general topic of Good Health.

Dr. Victor Vaughn, of Ann Arbor, President of the American Medical Association.

Dr. Slemons, Health Officer of the city of Grand Rapids.

Dr. Caroline Bartlett Crane, one of the world's noted authorities on sanitation.

Miss Carol F. Walton, secretary of the Michigan Association for the prevention of Tuberculosis.

Dr. Elsie Pratt of the University of Michigan.

Dr. H. M. Rich, one of Detroit's noted physicians and a health specialist.

Dr. Warthen, of the University of Michigan, whose stereopticon lectures on moral hygiene have won him national fame.

Dr. W. H. Sawyer of Hillsdale, regent of the University of Michigan.

Former Senator Helme, now head of the Michigan Dairy and Food Inspection Department.

Also Dr. E. McClure and Secretary Burkhart of the State Board of Health.

Chas. N. Carson, factory manager of the Cadillac Automobile Co., of Detroit, who will speak to the High Schools of Barry county, and who will explain why the great Cadillac company refuses to employ a smoker of cigarettes.

Dr. Darling, of the University, an authority on cancers, who will discuss that topic which is certainly one of timely interest in view of the many deaths caused by cancer.

During the forepart of October it was our pleasure to attend a delightful dinner and meeting of the St. Clair County Society. Thirty-four of the fifty-two members attended. Especially did we note that practically every one took part in the scientific discussion. Meetings that witness active discussion on the part of its attendants are bound to be instructive and interesting. The St. Clair County Society is looking forward to a winter of profitable meetings which we predict will cause the society to experience some of the best meetings in its history. Dr. Cote and Dr. Wheeler, President and Secretary, are determined to bring it about. Dr. Channing W. Barrett, of Chicago, is to be the invited essayist for the next meeting.

The Genesee County Medical Society, through its directors, offered to take care of the medical work of the county for \$1,000. The work is now done by Dr. W. H. Taylor and Dr. W. H. Winchester and includes the medical treatment of prisoners at the county jail, the administration of anti-toxin and care of indigent contagious cases, and the care of patients at the county farm. The offer was referred to the committee on settlement with the superintendents of the poor without discussion.

A number of the students of Alma college who are taking a preparatory course in medicine there, have organized an Altroix Pre Medic society. The society is to meet once a week during the college year and at various times will have speakers on different subjects in which the society is interested.

Dr. Charles Beaver of Mancelona has pleaded guilty in the United States court of Grand Rapids

and been sentenced for a term of four months to the Detroit House of Correction for selling liquor without a government license.

Dr. James R. Hayes, the village president of Cass City, was tendered a complimentary dinner by his townsmen just prior to his departure for Ann Arbor where he is now located.

Dr. B. Raymond Hoobler announces his removal from New York and location in Detroit where he will devote himself exclusively to the diagnosis and treatment of the diseases of infancy and childhood.

It is reported that the new St. Luke's Hospital in Marquette will be completed and equipped to receive patients sometime during the middle of November.

Dr. Amos S. Wheeler of Goodrich has returned home after spending several weeks at the clinics in London, England.

Dr. Perry White of Clio is in Hurley Hospital, Flint, where he went for an operation which was performed October 9, 1914.

Dr. Conklin of Grand Ledge has entered the naval school in Washington and will eventually enter into active medical service in the navy.

Dr. F. O. Paul, formerly of Idaho, has located in Marquette and is associated with Dr. Henry Cunningham.

Dr. C. F. Busard of St. Louis, Mo., has located in Muskegon and is associated with his brother at Muskegon Heights.

Dr. Charles D. and Dr. A. H. Aaron of Detroit announce the removal of their offices to the Kresge Medical Bldg.

Dr. P. W. Pearsall of Kalkaska has re-located in Muskegon after an absence of some eighteen years.

Dr. J. G. Cummings of Ann Arbor is pursuing a course in public health at Harvard. The University has granted him a year's leave of absence.

Dr. W. H. Manchette of Hancock announces that he will remove to Greenville, Ohio during the forepart of November.

Dr. Geo. H. Thomas and Miss Elizabeth Mingins were married on October 6. They will be at home in Holland after Nov. 1.

Dr. Charles Race of Ononda and Miss Edna Griffin of Battle Creek were married during the month of October.

Dr. M. L. Howell of Hastings has located in Lansing.

Dr. W. B. Fillinger, formerly of Detroit, has located in Grand Ledge.

Dr. Leslie H. S. DeWitt of Ann Arbor has opened offices in Kalamazoo.

The St. Joseph Sanitarium in Ann Arbor was formally dedicated on October 9.

Dr. R. C. Jamieson of Detroit announces the removal of his office to the Kresge Medical Bldg.

County Society News

CALHOUN COUNTY

We think we would be very ungrateful should we neglect to report such a pleasant and profitable meeting as the Calhoun County Medical Society enjoyed on the 6th of October when we had as our honored guest Dr. George W. Crile of Cleveland.

Dr. and Mrs. Crile arrived early in the day and were the guests of professional friends in the city, Dr. Crile attending and addressing a meeting of the Kalamazoo Academy in the afternoon. At six o'clock the Battle Creek Sanitarium extended the courtesy of a luncheon to which all the members of the profession, together with their wives, were invited, and which was given expressly for the benefit of meeting more intimately Dr. and Mrs. Crile. This was served in the Sanitarium Annex where the members enjoyed the privilege of meeting and mingling for a half hour preceding the luncheon. The appointments were perfect in every respect and the function was one of special enjoyment to all who participated.

Following the luncheon the members adjourned to the Chamber of Commerce Rooms where many physicians who were unable to get in earlier, had already assembled, and where Dr. Crile gave a highly interesting and instructive address the subject of which was, The Kinetic System. Dr. Crile has given deep study to this subject and presented to us the result of his investigations, together with the conclusions drawn therefrom, in a manner both instructive and entertaining. The membership accorded him the closest attention and unanimously agreed that this was our most successful meeting of the year, and probably no meeting in the history of the Society has equalled it, either in attendance or in point of interest.

We shall be pleased to see Dr. Crile's paper published in full in an early number of the *Journal*.

A. F. KINGSLEY, Secretary.

GRATIOT COUNTY

The fourth monthly meeting of the Gratiot County Medical Society was held in the Supervisor's room

in the court house at Ithaca, Tuesday, October 6th, at 2 p. m. The following is the program which was carried out.

Reading minutes of last meeting.

Clinic—Bring in or report your interesting cases.

Report of delegates to State Society meeting by Dr. I. N. Brainerd.

Cholera Infantum with Treatment, by S. D. Yerington.

Discussion opened by Dr. J. F. Suydam.

Vibratory Massage and Light Treatments, by D. F. G. Thornburg.

Discussion opened by Charles McLachlin.

Gout, by J. R. Shaffer.

Discussion by Dee H. Andrews.

Paper by B. G. Hall.

The Doctor and the People, by I. N. Monfort.

E. M. HIGHFIELD, Secretary

The Fourth Annual Meeting of the Gratiot County Medical Society was held in the Court House at Ithaca, Tuesday, October 6, thirteen members being present.

For a clinic Dr. Brainerd reported a case of hour glass stomach. Dr. Pankhurst reported a case of severe hemorrhage from a vaginal varicosity in a woman pregnant three months. Dr. Yerington then read his paper on Cholera Infantum. Dr. J. R. Shaffer talked on his experience with gout. President Monfort read a short paper on the relation of the physician to his patients in a financial way.

A fried chicken supper was then served to us at the expense of the Ithaca physicians.

It was a profitable meeting both from a scientific standpoint and a social standpoint.

E. M. HIGHFIELD, Secretary.

KENT COUNTY PROGRAM.

Wednesday, Evening, September 23, 1914.

Chamber of Commerce Building.

Meeting called to order promptly at 8 o'clock.

Paper—"The Relation Between Textbooks and Contagion in our Public Schools."

Dr. W. J. DuBois.

"The Classification and Treatment of Certain Forms of Kidney Disease."

Dr. F. D. Gordon.

Discussion of Dr. DuBois' paper was opened by Dr. Slemons.

The Society was extremely fortunate in having with us on September 12, Dr. William S. Bainbridge of New York City.

Dr. Bainbridge had given a paper at the meeting of the State Medical Society, and came from Lansing directly here.

In the morning, starting about 9:30, a clinic was held at the U. B. A. Hospital, during which Dr. Bainbridge demonstrated about twenty-five cases. Most of these cases were of surgical interest.

This part of the clinic occupied about an hour and a half.

The remainder of the day, up to about 7:30, was spent in operating eight cases. There were three cases of goiter, one of epithelioma of the lid, one of epithelioma of the lid and nose, one of epithelioma of the urethra in a female, one of cancer of the breast, and one of cancer of the uterus. In the later case the doctor demonstrated his own operation, which consists in tying off the internal iliac arteries and removing all of the affected glands. He was unable to perform the whole operation on the patient exhibited as the involvement was too extensive. The goiter cases were all operated under local anaesthesia and many converts were gained to this method during the morning.

A little dinner at the Kent Country Club was enjoyed by a good many members of the Society after the clinic.

In the evening Dr. Bainbridge gave a paper entitled "The Thyroid Gland, Hyperthyroidism, Hypothyroidism and Disthyroidism." The paper is one that is to be published soon and reviews the work of Hertog of Antwerp.

It is to be doubted if the members of the Society ever listened to a finer, more interesting or more convincing paper. Many were convinced that we could use thyroid a great deal more and to better advantage than we have been doing.

Dr. Bainbridge will ever be welcome among us.

As the members of the Society probably all know, the annual meeting of the Michigan State Medical Society is to be held here in 1915. The attendance at Lansing this year was five hundred and fifty-six. As next year is the 50th anniversary of the founding of the State Society, we expect greater attractions than ever before and a probable attendance of eleven or twelve hundred.

This means "some work" for Kent county, as we want to give them the best meeting that ever was.

Dr. D. Emmet Welsh was appointed by Dr. Peterson chairman of the committee on arrangements with power to appoint all the necessary committees. In the very near future, at a regular or special meeting, Dr. Welsh will appoint the chairmen of the various sub-committees. These will be empowered to appoint the members to work under them.

We ought to get busy at once, and start things going. A year is not any too long.

At the annual meeting of the Grand Rapids Academy of Medicine, which was held last June, after considerable discussion, it was deemed best to terminate the corporation. The proper legal steps were taken, and after an existence of thirty years, the Academy became a matter of history.

The funds left in the treasury were turned over to Mr. Ranck, to be used in the maintenance of the medical library at the Ryerson Library.

PROGRAM.

Wednesday Evening, October 14, 1914.
Chamber of Commerce Building.

Meeting called to order promptly at 8 o'clock.
The following symposium constituted the evening's work.

- "Recent Advances in the Treatment of Pulmonary Tuberculosis in Europe."
Collins H. Johnston.
- "European Tour of the American Gynecological Society."
R. R. Smith.
- "Post-Graduate Surgical Work in London."
R. J. Hutchinson.
- "Surgical Work Observed in Budapest."
L. H. Chamberlain.
- "Medical Post-Graduate Work in Vienna."
T. D. Gordon.

At the last meeting of the Society the matter of changing our meetings from bi-weekly to weekly ones was brought up and caused a good deal of discussion. A motion to that effect was even made, but was later withdrawn, as the members present thought that the matter was too important a one for so few of us to decide.

The question as to the legality of such a change was discussed, but on looking the matter up in the Constitution, we found that Article 4 says, "Regular meetings shall be held at such time and at such place as shall be determined by the Society."

Some of the members seemed to think that the Society is large enough to have weekly meetings. The majority of the members who discussed the matter were of the opinion that good bi-weekly meetings would be better than poor weekly ones.

The matter is an important one and merits a good deal of discussion and consideration.

E. W. DALES, Secretary.

MONTCALM COUNTY

The annual meeting of the Montcalm County Medical Society was held in the City Hall of Greenville on Thursday, October 8, 1914, with a program as follows:

- 1. A Symposium:
 - (a) Paper—Care of Pregnant Woman Before Labor, Including the Prevention of Eclampsia. J. O'Dell Nelson.
 - (b) Paper—The Conduct of Normal Labor in the Average Home.
M. E. Danforth.
 - (c) Paper—Management of Placenta-Praevia. A. S. Barr.
 - (d) Paper—Obstetrical Operations Including Forceps. A. W. Woodburne.
- Discussion opened by Dr. F. J. Fralick.

The election of officers for the ensuing year resulted as follows:

- President—Dr. H. L. Bower, Greenville.
- Vice-President—Dr. M. E. Danforth, Stanton.
- Secretary-Treasurer—F. J. Fralick, Greenville.
- F. J. FRALICK, Secretary.

OTTAWA COUNTY.

The Annual Meeting of the Ottawa County Medical Society was held Tuesday, October 20, 1914, in the Council Rooms, City Hall, Holland, and the following program was carried out:

- 1. Significance of Pains in the Various Regions of the Abdomen.
Dr. Eigar DeVries, Overisel.
- 2. Treatment of Heart Disease.
Dr. T. A. Boot, Holland.
- 3. Reports of Secretary and Treasurer.
Dr. H. J. Poppen, Holland.
- 4. Reports of Standing Committee.
- 5. Report of Delegates to State Society.
- 6. Address by the President.
A. J. Brouwer, Drenthe.
- 7. Election of Officers.
- 8. Miscellaneous business and such other business as may come up before the meeting.
H. J. POPPEN, Secretary.

TUSCOLA COUNTY

The annual meeting of the Tuscola County Medical Society was held at Caro on Oct. 8, 1914, fifteen members being present. The following program was carried out.

- 1. Call to order by the President.
- 2. Reading minutes of last meeting.
- 3. Communications.
- 4. Report of Secretary-Treasurer—W. C. Garvin.
- 5. Report of Board of Censors—J. H. Hayes.
- 6. Report of Board of Trustees.—C. W. Clark.
- 7. Report of Delegates of State Society.—F. P. Bender.
- 8. Address of the President.—R. H. Steinbach.
- 9. A paper—"Interstitial Nephritis." F. P. Bender.
- 10. Election of Officers.
- 11. Miscellaneous Business.
- 12. Adjournment.

The secretary's report showed the following:

Number of meetings during the year	6
Number of paper read	14
Number of clinical cases and reports	10
Number of visitors	21
Number of members at beginning of year	35
Number died	1
Number removed from county	2
Number suspended	2
Number reinstated	2
Number of new members	2
Number at close of year	35
Percentage of attendance	33½

The following officers were elected for the ensuing year:

President—T. W. Hammond, Akron.

Vice-Pres.—B. C. Bradshaw, Mayville.

Secy-Treas.—W. C. Garvin, Millington.

Trustee for Three Years—C. W. Clark, Caro.

Member Medico-Legal Committee—A. L. Seeley, Mayville.

The President, Vice-President and Medico Legal members were made, ex-officio, a committee to work in conjunction with the State Board of Registration in Medicine, in enforcing the Medical Practice Act in Tuscola County.

Place of next meeting, Caro.

W. C. Garvin, Secretary.

WAYNE COUNTY

PROGRAM

Monday, Sept. 28—Surgical Section.

Roentgen Diagnosis of Fractures of the Skull.

Dr. P. M. Hickey.

Discussion opened by Dr. C. D. Brooks.

Dr. A. D. McAlpine.

The first general meeting was held Monday, Sept. 21 and was exceptionally well attended. There were present some 27 members of the Toledo Academy of Medicine who came here to study our buildings and organization with a view of advocating a similar one for Toledo. They were enthusiastic over all they found and more determined than ever to succeed in their desires.

The evening was given over to the installation of officers for the coming year, reports of retiring officers and committees, and brief talks by Dr. Angus McLean and Dr. D. G. McKean on the meetings of the Congress of Clinical Surgeons of North America and of the British Medical Association respectively.

The retiring president, Dr. L. J. Hirschman said in part:

It will be my endeavor tonight to briefly review some of the accomplishments of the Wayne County Medical Society during the past year, and to suggest some lines of activity for your consideration for the year just opening.

The willing, cheerful and untiring, faithful and loyal service of every officer, committee-man and employee of the society has been the bulwark of whatever success has been achieved by the society during the past year.

The principal event of the year, and the crowning one of our existence, was of course, the completion and occupation of our new library and auditorium.

This building which cost, with its furnishings, in the neighborhood of \$33,000 has been pronounced by many medical visitors from all parts of the country, the finest and most complete of its size, that they have ever seen.

To make the erection of this building possible,

it was necessary to secure more money. This meant that many men who had not previously subscribed to the building fund were now given the privilege to do so, while many others who had already cheerfully subscribed, liberally increased their subscriptions so that it was necessary to borrow but \$20,000 to complete the building. When it is considered that the original building is free and clear, and the auditorium and library addition over one-third paid for, all from the membership of this city, and all in four years, it is a showing of which any organization can be proud. To our building committee, the board of trustees and all of those members who assisted in securing the subscriptions and above all to the subscribers themselves, the highest credit is due for the successful completion of our efforts.

The membership of our society has increased since the establishment of our medical home from three hundred and twenty-five to seven hundred and twelve. There is an increase, however, of several thousand per cent. in the spirit of professional kindness and cordial good-fellowship in the medical profession of Detroit during the same period.

During the past year our weekly bulletin has developed from a puny infant of four pages to a lusty youngster of eight, which has turned into the treasury of the society a profit of over \$300. To our publication committee and particularly its chairman, the society is under heavy obligation for this showing.

An innovation inaugurated the past year also by the chairman of the program committee was the establishment of the subscription dinner. Whenever an out-of-town guest visited us he was tendered a dinner to which the entire membership was invited, through the bulletin. These dinners were strictly informal and were attended by from fifteen to seventy-five members on each occasion. Their success was so marked that it is hoped they will be continued during the coming year.

The library committee has accomplished a Herculean task.

The equipment of the new stack-room, the reading-room and librarian's office, the installation and arrangement of thousands of books and journals has been successfully accomplished and in a most satisfactory manner. The chairman of this committee has succeeded in obtaining from the public library commission a small annual appropriation to assist in the maintenance of our library. The use of the library by our membership is increasing at a very gratifying rate. The very pleasant quarters provided, the comfortable chairs, good light and the efficient service of our librarian have all contributed to make the perusal of medical literature in our library a real pleasure.

The entertainment committee has fulfilled its duties very satisfactorily.

The house committee has renovated the entire building, made many provisions for the further

comfort and entertainment of our membership, and under its supervision, the cafe service has been greatly improved and perfected, and the appreciation of the membership of its labors, is best expressed by the very large increase in their patronage of this department of our society's activities.

On account of the increasing activities of our society, its tremendous growth and the establishment of our club-house and library it was deemed advisable to have a complete revision of our constitution and by-laws. This has been done by a special committee appointed for the purpose and is presented to you in the current issue of the bulletin.

During the year several thousand dollars in increased subscriptions to the building fund have been received and payments on old subscriptions have been coming in at a very satisfactory rate. Inasmuch as the mortgage on the new building will be due in a little over two years, it is hoped that the securing of new subscriptions will be carried on during the coming year as in the past and that a number of our members who have not yet subscribed will be given an opportunity to do so this year.

One event of importance which should be mentioned in passing is the fact that our auditorium has already housed one of our national medical organizations. I refer to the American Academy of Otology, Ophthalmology and Laryngology which held its mid-winter meeting in Detroit in February. It is to be hoped that we may have the pleasure of welcoming many other national organizations to our home and that the time will not be far distant when our auditorium will be the meeting place of the House of Delegates of the American Medical Association, which organization I hope will be invited to hold its sessions in Detroit, either in 1916 or 1919. It is up to this society to take the initiative in this matter, and I hope a committee will go into the matter and prepare an invitation to be presented by your delegates at San Francisco.

I wish to pause at this time to give expression to our sense of deep personal loss in the death of one of our trustees, Dr. Edgar B. Smith. In these days when all of civilized Europe is engaged in the most terrible of all wars of human life-destruction, one reads occasionally of some individual instance of personal heroism on the battlefield. In the greater battle of life-saving countless thousands of heroes in the medical profession have gone to their premature ends, as the result of acts just as heroic and often far more unselfish. Such a man was Dr. Smith. He carved out his career from an humble beginning. He downed the handicap of a lack of preliminary training which many of his confreres possessed, and was essentially a self-made man. He was a liberal contributor to the building fund, and a very generous giver of his counsel, advice and

time during his membership on the board of trustees. Dr. Smith's strong personality and kindly heart will be greatly missed by us all.

What suggestions should your retiring president leave for the incoming administration? We may hope for renewed activities along all of the lines followed in the past, and would suggest that a number of talks on medical subjects be given to lay audiences in our Auditorium at frequent intervals during the coming season.

We would suggest among other things, that the individual member of our society, besides being a physician, is also a citizen. All good citizens should take a personal interest in the administration of civic affairs. There are many activities in the conduct of our city and its government, in which the active participation by men of our profession would redound to the betterment of the health of the city and the happiness and prosperity of its citizens.

I do not mean that physicians should necessarily run for or occupy political office (although there is no reason why they should not in many instances), but I do mean that they should pay particular attention to the quality of men who do, and I endeavor to assist in electing those who will pledge themselves, not only for a bigger, but for a better and healthier Detroit.

The physician should take an active interest in every movement for more playgrounds, more public bath-houses, good pavements, pure water supply, saving of shade trees, better housing for the poor, clean alleys, clean sanitary public toilets; the proper attention to delinquent boys and girls, hygienic school houses, court-rooms and other public buildings; a shortening of working hours for women and those who are physically unable to stand the strain, and the education of the public to a proper appreciation of the necessity for their liberal support of medical teaching institutions and hospitals. The above and many more lines of activities which will suggest themselves to all I hope will commend themselves to your attention.

In conclusion I wish to extend to the entire membership of the society my deep and heartfelt thanks for the great honor you bestowed on me, one which I assure you I will appreciate during my entire existence and to assure you, that though again reduced to the ranks, you will find me always ready to obey your orders and to carry out any task which may be set for me to do. The interest of the Wayne County Medical Society will always be mine.

The treasurer, Dr. F. B. Tibbals submitted the following report:

Statement to Sept. 1, 1914.

Assets—	
Cash—Wayne County & Home Savings Bank	\$ 2,344.15
Furniture and Fixtures	5,298.29
Library	12,000.09

Land and building	25,000.00	
New auditorium	30,560.20	
		\$75,202.64
Liabilities—		
Defense League	\$ 578.69	
Wayne County & Home Savings Bank	19,000.00	
Life membership	300.00	
State Society	11.00	
Surplus "Special"	18,546.69	
Surplus "General"	\$32,461.51	
Rev.—Exp.	4,304.75	36,776.26
		\$75,202.64

Jan. 1, 1914 to Sept. 1, 1914.

Revenues—		
Auto tags	\$ 44.00	
Building fund	3,148.50	
Bulletin	396.94	
Cafe	214.91	
County dues	3,006.50	
Miscellaneous	13.69	
Rental earnings	840.00	
Revenue on auditorium....	177.85	

\$7,842.39

Expenses—		
Entertainment	\$ 173.39	
Library	183.91	
Maintenance	2,098.41	
Office	727.75	
Miscellaneous	43.71	
Repairs to building	310.47	

\$3,537.47

\$4,304.47

Dr. Thaddeus Walker read the proposed constitution. It will be read a second time next meeting and on Monday, Oct. 5, will be considered for adoption. Dr. Walker urged that every member should study this constitution carefully in order that he be fully informed of all its provisions.

Dr. J. W. Vaughan submitted the report of the delegates to the Michigan State Medical Society, which we print in full.

Dr. W. L. Babcock submitted the report of the building committee. The buildings are now completed and occupied by the society so the work of the committee is finished. Dr. Longyear speaking for the Trustees, told of the splendid work of this committee and of the efforts and personal sacrifices made by the individual members, especially Dr. Babcock, the chairman. The society unanimously thanked the committee on their work.

Dr. C. W. Hitchcock submitted the report of the necrology committee. This committee is at present endeavoring to collect pictures of all deceased members of the society. They ask the aid of the society in general in doing this.

Dr. Cullen submitted the report of the Library Committee. There are at present 14,000 bound volumes and 80 current journals in the library. Many volumes have been donated. A steel book stack having a capacity of 17,000 volumes has been erected. The appointment of a librarian to succeed Miss White, who is now business manager of the society is recommended. Financially, the committee has received \$300 by courtesy of the Detroit Public Library Commission, and Mr. Adam Strohm, city librarian. They have spent \$234.83 for binding new books and files and \$1,350.00 for the steel stack.

PROGRAM.

Monday, Oct. 5—General Meeting, Charter Night.

Address by Miss Agnes D. Carson, R.N.
Subject—The object of the Detroit Home Nursing Association to the Physicians, and their patients and to the graduate nurse.

Discussion and vote upon the constitution.

ABSTRACT OF THE SECRETARY'S REPORT FOR 1913-1914.

Dr. R. L. Clark.

Dr. Clark spoke of the achievements for the past year. There have been 104 new active members and 14 new associate members, while 4 have been transferred from other societies. The total membership is now 658. The new auditorium and buildings have been completed. The new Committee on Public Health was established. The constitution has been revised. The establishment of a credit bureau has been considered. The society has favored a standard of physical examination for those about to be married. Support was given the United States Government and the Health Board in the recent diphtheria epidemic.

Dr. Clark enumerated certain suggestions made during the last year. 1. Change of time of meetings to other than Monday. Sunday being a holiday, Monday is unusually busy and many cannot attend. 2. The establishment of a credit-rating bureau. 3. Drafting of a fee schedule. 4. Study of recommendation of bookkeeping systems for doctors. 5. Making provision that physicians not members of the society be permitted to attend meetings. 6. Employment of a stenographer to do the official work of the society.

REPORT OF THE HOUSE COMMITTEE.

Sept. 1, 1913 to Sept. 1, 1914.

Cafe—		
Total income	\$1,202.68	
Total expense	877.68	
Revenue		\$ 325.02
Rentals received from the Detroit Clinical Laboratory and Nurses' Central Directory		\$1,260.00

Auditorium—

Income	\$ 601.00
Expense	423.15
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Revenue	\$ 177.85
Miscellaneous revenue	\$ 116.96
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House maintenance expense	\$2,643.05
Repairs to buildings	339.72
Miscellaneous	43.71
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	\$3,026.48

The committee reports gifts of pictures from Dr. Carl Bonning, Dr. Benj. P. Brodie, Estate of Dr. E. L. Shurly, Mrs. Obetz.

PROGRAM.

- Monday, Oct. 12—Medical Section.
Resume of Forty Cases of Diabetes with Acidosis. Dr. Hugo Freund.
Discussion opened by
Dr. Charles Goodwin Jennings.
Dr. E. W. Haass.
- Monday, Oct. 19—General Meeting.
Sacral Anaesthesia.
Twilight Sleep in Obstetrics.
Dr. Kurt Schloessing, New York City.

MEETING SURGICAL SECTION, SEPTEMBER 28.
Roentgen Examination of Fractures of the Skull.
Dr. P. M. Hickey.

While the frequent use of the Roentgen Ray as a diagnostic aid in the examination of the long bones has had a tendency to displace other methods of examination of important, though perhaps not of as exact value, a vast amount of knowledge which can hardly be classed as diagnostic has been added concerning fractures. Many fractures formerly thought to be quite uncommon, have been proven to be quite as common as some of the more easily recognized types. For example, fracture of the os calcis long classed as a practically unknown break, has been shown to be the most frequent form of injury when the patient drops from any height and lands upon his feet, in fact the symptoms now are so well known that the Roentgen Ray is resorted to simply to confirm the clinical diagnosis. Fractures of the head of the radius, formerly thought quite uncommon, are now shown to be one of the common injuries of the elbow. Fractures and dislocations of the carpal bone, formerly classed under the general term of Colles's fracture, are now shown to be comparatively common and worthy of the most careful study. Green stick fractures formerly supposed to be confined to the bones of children, are now shown to occur at any age and in bones which we formerly thought were not the seat of this pathology.

The writer recently saw a typical green stick fracture in the vicinity of the greater trochanter in a man over fifty years of age. Repeated ob-

servations of plates correlated with the study of cases has shown the value of differentiating between anatomic and functional results. Formerly we believed that all good functional results were probably attended with anatomic accuracy, this, however, of course, is not necessarily so, in fact very rarely so with fractures of both bones of the arm or leg.

Pathologic fractures formerly classed under the head of osteomalacia are now grouped by the aid of the ray in their respective classes as fractures due to syphilis, sarcoma, carcinoma, ostio-fragilita, etc. The so-called railroad spine and the former obscure injuries to the back which were often classed as neuroses are shown now to be in many cases, fracture dislocations of the articular facets, especially of the lumbar vertebra. Most simple dislocations have been shown to be attended with usually slight injury, at least to the adjacent bones. The ruptures and torn ligaments oftentimes carry away with them a small scale of bone.

While investigators have brought under the scrutiny of the ray the long bones, small bones about the joints, the segments of the vertebral column, the head has remained separate from the field of observation. This perhaps has been due to the fact that for many years the apparatus employed presented certain technical difficulties which tended to render the plates of the head of comparatively little value. With the advent of the modern transformer, the use of tubes whose metallic portions were made of tungsten, the introductions of more convenient tables and tube stands, the tendency has arisen within the last few years to carefully investigate injuries of the head. To our great surprise, it has been found that fractures of the skull are much more common than formerly supposed, and that their recognition by the Roentgen Ray is a matter of much simpler technic than was formerly thought.

In the Roentgen examination of the head for the detection of injuries of the bony vault, examination should be made by approved apparatus and with thoroughness and careful inspection. For the detection of injuries of the different portions of the head, different positions must be used, all of which are plainer now to the average Roentgenologist. Following the well-known Roentgen dictum that the nearer the part to be displayed can be brought to the plate, the better will be the illustration of the pathology, it follows that injuries of the right side of the head should be depicted upon one plate and the left side depicted upon another plate, also the anterior and posterior portions should be examined separately. Having a routine which will bring into view the different regions, the detection of fractures by the Roentgen Ray becomes comparatively simple. The most important aid in the technic is the use of the stere-

oscopic method whereby two plates which have been made with the ray entering at different angles and subsequently examined in a Wheatstone stereoscope, afford more exact information than does the flat plate. While the veriest tyro in medicine or the usual lay observer can often diagnose fractures of the long bones from a casual inspection of a plate, the detection of fractures of the skull demands skill in the interpretation of plates, otherwise, bad mistakes will easily occur. This is due to the fact that fractures of the skull are usually simple cracks in the bone and will show upon the plate as a mere marking. Now the normal skull contains quite a variety of linear markings, part of which are due to the grooves of the inner table for the middle meningeal vessels and part of which are due to the channel between the tables of the skull or the so-called diploetic vein. Then we find also that the joining of the bones together by suture line may produce appearances which might easily be mistaken for fracture lines.

Following his paper, Dr. Hickey showed reproductions of head plates upon the screen and mentioned several points of practical importance.

The ray has showed that many minor head injuries and all those having symptoms of concussion are fractures. If the break is clean and in an unimportant region, the outlook is favorable. If, however, the break is stellate and crushed, splinters project into the brain substance or a region of big vessels is implicated, the patient is in immediate danger and operation is indicated. Fractures of the base are usually extensions downward from the parietal regions.

The remote effects of fracture are those of pressure on the brain substance from clots, cicatricial tissue or splinters. These can be shown, an old clot especially causing thinning of the inner table. High intra-cranial pressure from tumor or other cause is shown by enlargement of the diploetic vein shadows.

In the discussion, Dr. Walter Vaughn spoke in detail about intra-cranial blood clots. These do not absorb as occurs in other parts of the body. Later degeneration takes place and a cyst is formed, the "traumatic brain cyst," which is larger than the original clot and produces typical tumor symptoms. The cysts can be aspirated and the fluid contains albumin.

Dr. Stevens mentioned the number of cases of skull fractures which occur without symptoms.

Dr. Livingston showed a specimen of *Filaria Loa* which he had received from Africa. This beast is probably given to man by the bite of some insect though its life cycle is not known. It lives in the subcutaneous connective tissue and under the conjunctiva. Only in the latter place does it cause symptoms and when it appears there the natives dig it out with a thorn or other sharp instrument.

GENERAL MEETING, MONDAY, OCTOBER 5.

Miss Agnes D. Carson told of the purpose of the Detroit Home Nursing Association and especially of their relations to the practicing physicians.

Practical nurses have two positions to fulfill, first that of nurse to those persons who have not the means to pay a graduate nurse and second, that of household helper and nurse combined in certain cases where the patient is not very ill and yet cannot take care of her ordinary duties.

Before the Association was formed several abuses had arisen in the practical nurse problem. They had assumed the full duties of the graduate nurses and charged as such, although lacking the full training and they did not fall in with recognized medical ethics. They also were irresponsible and there was no guarantee of efficiency outside of what they themselves asserted. The Association seeks to correct these abuses. First they will only list those persons whom they can feel responsible for. Second, they superintend their nurses while at their work. Third, they will not allow the nurses to do things that they are not trained in, such as use of hypodermic syringe or pass of catheter. Fourth, they demand a good character and ethical standard on the part of their nurses. In case the patient is very ill, a graduate nurse is requested to attend and then the responsibility is shifted upon her, the practical nurse becoming her second.

The charge for these nurses is from \$10 to \$16 per week. Miss Carson says that household helpers are very hard to get in this city.

The doctors are warned that the practical nurse is only human, and that if she is flattered and coddled she will believe herself superior to the trained nurse. This results in no good for anybody, the nurse included, and we are requested to be guarded in bestowing our praise.

Dr. Babcock spoke of the objects of this society. He told of its origin and said that it is hoped it will become nation wide in its scope and embrace all the large cities. The chance to employ such a person under good supervision is of immense advantage to the people and also to the physicians.

The proposed constitution was discussed by sections. Several changes were moved. These will appear in the next issue.

The Directors presented two recommendations to the society which were accepted by motion. First: That a committee be appointed to draught a new fee schedule. Second: That physicians of the county not members of the society be given the freedom of the building and meetings for a period of 30 days, in order that they will see the advantages of membership.

A vote of thanks is due the International Joint Commission for declaring so emphatically that our waterways are polluted with sewerage. To

some who profess delight in the attractions of rivers this information is unnecessary. The situation is not microscopic, it is macroscopic; in fact, if one travels closely to the surface of the water it is clearly apparent that our whole river system from Port Huron to Monroe is one large sewer. Others, however, do not have a chance for this first hand information and to those the declaration of a high authority is the only method that carries conviction.

This condition being put fairly before us, it is our duty by law and common decency to remedy it. The road is clear, and yet unless the propelling force of the movement is constantly supplied with new energy there will be delays, deliberations and investigations until the ultimate solution is lost completely.

It is beyond the imagination to believe that this state of affairs has been wished upon us by any man or any set of men. It is the result of the ignorance of the general public to the sickness and death which this water can bring into their families. Those few who are remotely aware of the matter feel secure in the exploded theory that provided the bacillus typhosus cannot be demonstrated culturally, the water is quite safe and healthy. It is no wonder that they are unwilling to go to the expense of remedying an evil that they know not of.

If the public, or an influential part of it, wishes good water they can have it soon enough. If they can be made to see the dangers of contaminated water, they will wish for pure water. It is therefore the duty of the physicians, individually and collectively, to educate those about them to the fact that not only typhoid fever, but dysentery, sore throats, colds and even tuberculosis are in some manner materially lessened when the water supply becomes pure. They might also mention in passing that this situation is not peculiar to our vicinity. It occurs whenever number of people congregate together and has been met by all the countries of Europe and many of the cities of America.

It is not to be hoped that the voice of the medical profession can swing the opinion one way or the other. It is, however, quite sure that, until the group of men who are supposed to know most about these things are united and determined in their opinion, the public will be only too glad to let things slide, and to blame our epidemics, as in centuries gone by, to the wrath of the Gods.

CLARENCE E. SIMPSON, Secretary.

Book Reviews

A TEXT-BOOK OF THE DISEASE OF THE NOSE AND THROAT. By Jonathan Wright, M.D., Director of the Department of the Laboratories, New York Post-Graduate Medical School and Hospital, and Harmon Smith, M.D., Surgeon to Throat Department of the Manhattan Eye, Ear, Nose and Throat Hospital; Clinical Professor of Laryngology and Rhinology, Cornell Medical School. Octavo, 683 pages with 313 engravings and 14 plates. Cloth, \$5.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

This new text-book of laryngology is a notable addition to the literature of the subject. While essentially, by reason of its clarity of statement, logical plan and unusual literary style, all that a text-book should be, it is, moreover, a most comprehensive general treatise on its subject. Both text and illustration give abundant evidence of painstaking effort in the accumulation of material and its preparation for presentation.

The feature that at once distinguishes this book is the emphasis laid upon the etiology and pathology of disease. Recognizing this as essential to logical and scientific procedure, the authors advance in their discussion of nasal, laryngeal and pharyngeal morbid processes from an etiological and pathological basis. While it has been their aim to give causes and consequences the consideration due their importance, this has not been accomplished at the expense of other aspects. The consideration of symptomatology and diagnosis and the topical and operative treatment of diseases of the upper air passages follow in natural and logical sequence and in no less comprehensive detail.

Much of the work in etiology rests on original investigation in the laboratory and clinic extending over many years. While the authors' familiarity with the extensive literature on this subject is evident, reference and historical allusion are studiously subordinated to the presentment of original research and conclusion.

An easy literary style carries the attention of the reader, while the illustration is so complete, detailed and extensive as to be remarkably illuminative.

While planning a text-book, the authors have succeeded also in recognizing and emphasizing exactly what is required by their fellow practitioners. In its nearly 700 pages is comprised practically the sum total of present-day knowledge in laryngology, so logically arranged, with such a wealth of illustration, with all procedures so clearly set forth, that it should be of the utmost value to every general practitioner who treats the nose and throat, as well as to the specialist in this field.

It is our opinion that no better adapted volume for practitioner and specialist could be mentioned. The work is an excellent testimonial of the authors' ability.

**DON'T FAIL TO ATTEND
YOUR NEXT MEETING**

PRACTICAL THERAPEUTICS. With Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College of Philadelphia. New (15th) edition, thoroughly revised and rewritten. Octavo, 998 pages, with 144 engravings and 7 plates. Cloth, \$4.00 net. Lea & Febiger, Philadelphia and New York, 1914.

Hare's Therapeutics has become one of the classics of medical literature. Excepting only Gray's Anatomy, it has probably been more widely used, both by students and physicians, than any other work in any department of medicine. It has always held the distinguished position of being by far the best exponent of therapeutics in the English language, and in its many editions it has reflected faithfully the wonderful advances of the past twenty-five years. The present new edition (the fifteenth) is, if possible, an improvement over its excellent predecessors. The same plan is followed throughout; the useful characteristics have been maintained; the text has everywhere been brought up to date, and certain articles have been added or rewritten, as for example, those on salvarsan and neo-salvarsan, tuberculin, anesthetics, digitalis and the other cardiac drugs. The text which deals with many of the newer methods, such as vaccine therapy, will be found judicial and unbiased. The following quotation from the preface is characteristic of the spirit which prevades the entire work:—"This is the era of therapeutic rationalism, when remedies are given not because they are recommended by, or said to be valuable by, some authority, but because their use appeals to the medical man who has a knowledge of the physiological, pathological, and therapeutic problems to be faced, and can, therefore, judge for himself what remedy is best suited to a given case when he is informed how it acts."

Physicians, surgeons, specialists who neglect securing this volume are overlooking a book that should be in every library and referred to frequently.

INTERNATIONAL CLINICS. A quarterly of illustrated clinical lectures and especially prepared original articles. Edited by Henry W. Cattell, M. D. and ten collaborators. Volume III, 24th Series. J. B. Lippincott Co., Philadelphia. Cloth, 309 pages. Price \$2.50.

A volume of a series that belong in every library. Excellently illustrated and containing a series of papers that are all worthy of careful reading and thought.

A TEXT-BOOK OF PATHOLOGY. For Students of Medicine. By George Adami, M.A., M.D., LL.D., F.R.S., Professor of Pathology in McGill University, Montreal, and John McCrae, M.D., M.R.C.P., (London), Lecturer in Pathology and Clinical

Medicine in McGill University, formerly Professor of Pathology in the University of Vermont. Second edition, enlarged and thoroughly revised. Octavo, 878 pages, with 395 engravings and 13 colored plates. Cloth, \$5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

The great popularity into which this work sprang immediately on publication, is shown in the appearance of a new edition only two years after the original issue. Such success can come from only one cause, and there can be no doubt as to the surpassing merits of this work. Pathology is probably the most difficult subject to present of any in medicine, and heretofore it has baffled almost every effort. The authors of this work, however, are admirably equipped. They are pathologists of unexcelled scholarship and literary ability, and they possess a commanding knowledge not only of pathology itself, but also of all the sciences contributory thereto. They have carried on original investigation, study and research, so that they speak with the authority of first-hand knowledge. It is their aim to teach the student to think for himself and accordingly in this work continued emphasis is placed upon the reasons underlying pathological conditions. In the new edition all the reliable advances of the past two years have been included. A new chapter on "The More Important Infections and Their Prominent features" has been inserted. The classification of tumors has been simplified, the recent work dealing with toxins and the effects of "split products" is included; a syllabus has been placed at the beginning of each chapter; and the volume is completely cross indexed. A fair idea of the thoroughness of the revision may be obtained from the fact that the new edition contains over one hundred additional pages, as well as 91 new engravings, and 2 new colored plates.

THE CLINICS OF JOHN B. MURPHY, M.D., at Mercy Hospital, Chicago. Volume III. Number IV. Octavo of 254 pages, 65 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Published Bi-Monthly. Price per year: Paper, \$8.00. Cloth, \$12.00.

Commencing with the author's lecture on diagnosis to the very last case report, the reader is presented with an excellent group of clinical cases that are utilized to instruct both practitioner and surgeon.

Thus far in the series of all the cases reported recovery has followed. We venture to suggest that the author report some of his fatal cases and then point out the factors that existed and the direct cause of death. It seems that thus we might avoid our mistakes of omission.

MANUAL OF OBSTETRICS. By Edward P. Davis, A.M., M.D., Professor of Obstetrics in the Jefferson Medical College, Philadelphia. 12mo. of 463 pages, 171 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$2.25 net.

Here is a manual that gives a concise account of modern obstetrics. It is right up to the minute and abreast with the latest that has been developed in obstetric science. It is an admirable guide to diagnosis from a clinical standpoint and its readers will be enabled to make wise decisions in treatment.

It contains numerous illustrations that are lucid and thus enhance the value of the text. It is a work of well classified facts.

AN EPITOME OF PEDIATRICS. By Henry Enos Tuley, A.B., M.D., Late Professor of Obstetrics, Medical Department, University of Louisville; Editor Louisville Monthly Journal of Medicine and Surgery; Late Chairman of Section Diseases of Children, American Medical Association; Ex-President American Association Medical Milk Commissions, etc. New (2nd) edition, revised and enlarged. 12mo., 324 pages. Cloth, \$1.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914. (Lea's Series of Medical Epitomes.)

widening of knowledge more marked than in Pediatrics. This wealth of new material has impelled the author to practically rewrite his earlier work in preparing the new edition.

The character and scope of the book have not been altered. It contains the essentials of the subject as taught by the foremost authors, instructors and specialists, collated and epitomized by the author with marked success. He overlooks no necessary detail in the whole wide subject from birth to adolescence, with ample consideration of the anatomy, development, care and examination of infants, the therapeutics peculiar to that age, the feeding of infants and other children, and the symptomatology, diagnosis and treatment of the various diseases.

Important additions have been made to the chapter on contagious diseases; a valuable chapter on diseases of the skin added; and important additions and modifications made in the section devoted to infant feeding, certified milk, milk modification, pasteurization, etc.

The book is characterized by completeness as much as by the author's success in condensing the essentials of so broad a subject within the limits of a volume of this size. The set of questions terminating each chapter has been substantially amplified. The student's demand for condensed literature on Pediatrics has been successfully met, and his mastery of this small volume will qualify him for examination or for putting his knowledge into practice.

NERVOUS AND MENTAL DISEASES. By Joseph Darwin Nagel, M.D., Consulting Physician to the French Hospital of New York, Member New York Academy of Medicine, Honorary Member Societe Royal de Belique, etc., Physician to St. Chrysostom's Dispensary. New (2nd) edition, revised and enlarged, 12mo., 293 pages, with 50 engravings and a colored plate. Cloth, \$1.00, net. (The

Medical Epitome Series.) Lea & Febiger, Publishers, Philadelphia and New York, 1914.

The mere acceptance of the monumental task of collating and digesting the immense volume of material of nervous and mental diseases commands attention, while Dr. Nagel's marked success in the formidable undertaking is a fitting culmination to such an effort.

Each page of the epitome gives evidence to a notable and equal degree of the author's own wide experience and study, and of his careful and painstaking review and assimilation of the voluminous literature of this subject, including the most recent discussions and announcements.

The author has mastered to an unusual degree the art of concise statement, with the result that a surprising amount of essential matter is presented in very full detail. In the process of condensation the tendency is naturally to omit matter which may be of substantial value to the student, but the volume under consideration is singularly free from such omission. The revision has been most complete. Several sections have been practically rewritten and substantially enlarged. Changes in classification particularly of mental diseases, have brought the epitome into complete accord with the most advanced thought. The plan of presentation is so orderly as to render the vast amount of condensed information presented most readily assimilable. The illustrations are numerous and well chosen, showing characteristic clinical types and schematic presentations of nerve tracts and connections.

The undergraduate who masters this compact volume will find himself possessed of a thorough grasp of the fundamentals, while the busy practitioner will find in it a most useful aid to memory. The sets of questions reviewing each chapter are supplemented by a list of questions selected from recent State Board examinations, which will be most valuable to the student who desires to test his own knowledge or to prepare for examination.

A NOTABLE WORK ON BIOLOGICAL THERAPEUTICS. A book of uncommon interest and value to physicians has just been issued from the press of Parke, Davis & Co. It is a new "Manual of Biological Therapeutics," receipt of a copy of which is hereby acknowledged by the editor of this *Journal*. The book is handsomely printed in large, clear type, on heavy enameled paper, and bound in cloth. It contains 174 pages of text, upwards of thirty full-page plates in color, and a number of half-tone illustrations in black and white, together with a comprehensive index. As its title suggests, it is a concise and practical treatise on biological therapeutics, and so replete with useful information that no practitioner should miss the opportunity to secure a copy, especially in view of the fact that the publishers announce that the entire edition is to be distributed gratuitously to members of the medical profession. To

our physicians friends we suggest the propriety of writing at once for a copy of this "Manual of Biological Therapeutics," addressing the request to Parke, Davis & Co. at their home office in Detroit, Michigan. It will not be amiss to mention this *Journal* in writing.

Miscellany

Angier's Throat Tablets.—These tablets are stated to be composed essentially of elm bark and petroleum and yet are claimed to "promote appetite and aid digestion." The A.M.A. Chemical Laboratory reports the tablets to contain about 12 per cent. of soft yellow petrolatum, like that found in Angier's Emulsion (*Jour. A.M.A.*, Sept. 12, 1914, p. 964).

Vaccination Against Smallpox and Typhoid.—In view of the war, a general revaccination of the population of Paris has been ordered and huge quantities of anti-typhoid serum have been prepared (*Jour. A.M.A.*, Sept. 5, 1914, p. 873).

Vaccine Virus not Contaminated.—A study of cases shows that vaccinal tetanus is not due to contaminated vaccine virus. Further, since the law regulating the sale of biologic products in 1902 went into effect, there have been examined in the Hygienic Laboratory of the U. S. Public Health Service over 1,500,000 doses of vaccine virus without a single specimen having been found to contain tetanus spores. Also, experiments indicate that tetanus will not be produced even if the virus used contains tetanus spores. Most cases of vaccinal tetanus are due to infection after vaccination (*Jour. A.M.A.*, Sept. 19, 1914, p. 1032).

Value of Talcum Powders.—The action of talcum powders on the skin depends on their protective and dehydrating properties. On the other hand they tend to form crusts and pastes, due to mixture of the powder with sweat or other secretions. There is doubt if the boric acid in talcum powders can exert any antiseptic action. The action of the salicylated talcum powder of the National Formulary, though containing 10 per cent. of boric acid, depends on its salicylic acid. Commercial talcum powders contain small amounts of various antiseptics and perfuming agents and have little value from a therapeutic point of view (*Jour. A.M.A.*, Sept. 26, 1914, p. 1129).

Sodium Versus Potassium Salts.—The probable shortage of potassium salts due to the war suggests that sodium salts may in most cases be substituted without disadvantage. In general potassium salts have no marked superiority over the corresponding

sodium salts. While the potassium compounds are said to be more active and to possess a more diuretic effect, the sodium salts are less depressing to the heart and in some instances less disagreeable to taste. Sodium iodide, sodium bromide, sodium acetate, sodium citrate, etc. are just as effective as the corresponding potassium salts (*Jour. A.M.A.*, Sept. 19, 1914, p. 1034).

Liquid Soap.—The following economical formula has been proposed. It may be flavored and colored to suit: Sodium hydroxid 55 gm., potassium hydroxid 65 gm., cottonseed oil 800 c. c., alcohol 500 c. c. and water to make 5,000 c. c. (*Jour. A.M.A.*, Sept. 36, 1914, p. 1129).

Sanatogen.—Testimonials for Sanatogen are published which show good results in cerebral concussion, alcoholic gastritis, anemia, etc. The patient is given a chance to recover by rest, a proper diet and Sanatogen—and the recovery is attributed to Sanatogen. Based on some biologic experiments the exploiters of Sanatogen assert that "Sanatogen acts as a strong stimulus as far as the recuperative powers of the blood are concerned." These experiments were repeated by Professor A. J. Carlson of the University of Chicago, using Sanatogen, casein and glycerophosphates, milk and crackers and milk. Prof. Carlson's experiments show that the effects produced by Sanatogen are not different from those obtained when casein, casein and glycerophosphates, milk and crackers and milk are used (*Jour. A.M.A.*, Sept. 26, 1914, p. 1127).

Significance of the Word "Lutein."—The word "Lutein" has long been applied in physiologic chemistry to designate a group of fat-coloring matters which occur in nature and which have more recently also been given the general designation of lipochromes. As a rule the use of the term has been restricted to the yellow coloring-matter which develops in the ovarian structures. It is unfortunate that lately various preparations of dessiccated corpora lutea from animals are being sold as lutein (*Jour. A.M.A.*, Sept. 29, 1914, p. 1119).

Cancer as a Preventable Disease.—Cancer may almost be classed as a preventable disease; cure is always possible if the disease is arrested before it begins. Procrastination has killed more patients than the surgeon's knife.—Raymond C. Turck, in *Jour. Florida Med. Assn.*

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Original Articles

THE SURGICAL TREATMENT OF FACIAL PARALYSIS.*

E. H. BECKMAN, M.D.
ROCHESTER, MINN.

The first attempt to cure complete facial paralysis by surgery was made in 1895 by Ballance and Stewart (1) when they united the distal portion of the facial nerve to the side of the spinal accessory nerve. In 1898, Faure (2) united the trunk of the facial to the trapezius branch of the spinal accessory, the branch being divided with end to end anastomosis. In 1899, Kennedy (3) divided the facial nerve for facial spasm and united it to the spinal accessory end to side. The rationale of this work is based to a large extent on the conclusions published by Ballance and Stewart in 1901, as well as on those of other members of the so-called "peripheral school." According to these observers, regeneration occurs in the distal segment of a divided nerve even when it is separated from its central connection. Such regeneration does not reach maturity unless the distal is again joined to the proximal segment, permitting transmission of impulses between the nerve centers and the periphery. This regeneration, however, is sufficient to maintain the isolated peripheral nerve in a fairly healthy state even for years. It also preserves the end-organs, thus, when the peripheral nerve is finally anastomosed with a healthy proximal nerve segment, under favorable circumstances, almost complete regeneration takes place, causing normal muscular contractions in the area supplied by the distal nerve. It, therefore, seems advisable in most cases of facial paralysis, especially in those where the injury to the nerve has been proximal to the stylomastoid foramen, to attempt anastomosis of the distal segment to a healthy motor nerve trunk for the cure of the distressing and disfiguring paralysis.

Manasse, (4) in 1900, and Barrago-Ciarella, (5) in 1901, showed by experimental work on

animals that anastomosis between the facial and spinal accessory uniformly leads to complete restoration of movements in the facial muscles in about six months, the first evidences of regeneration occurring at about four and one-half months.

Since the work of Ballance and Stewart, a number of cases have been reported in the literature. Two nerves in particular have been selected as suitable for anastomosis with the divided end of the facial: the spinal accessory and hypoglossal. The reasons given for favoring the use of the hypoglossal are; that its nerve trunk is larger. The proximity of the cortical centers of the facial and hypoglossal nerves. Some of the fibers of the two nerves here a common origin and their centers are closely connected by association fibers, thus making cortical education and control easier after operation. The associated movements when present are not visible. Against the use of the hypoglossal is the argument that the difficulties of deglutition, phonation and mastication and the paralysis of taste on the anterior half of the tongue are much more distressing to the patient than the disability resulting from cutting the spinal accessory. In a recent case reported by Welty, (6) the atrophy of the tongue after three years was so extreme that speech was interfered with to a marked degree. He states that this would have been a serious handicap to anyone required to use the voice in earning a livelihood. It would seem that the spinal accessory is preferable because of its accessibility, its motility allowing union without tension, and the relatively small importance of the paralysis and shoulder droop resulting from cutting the nerve. Soon after regeneration occurs, the visibility of associated movements between the shoulder and facial expression is particularly annoying, but continued education of the cortical center in time almost entirely overcomes this difficulty.

There can be no doubt that facial paralysis is more distressing to a patient physically and mentally than the paralysis resulting from the above methods of attempted cure. The operation is applicable to all cases of paralysis of the main trunk of the facial nerve. It has been

*Read before the Surgical Section of the Michigan State Medical Society, Lansing, Sept. 10, 1914.

used successfully in paralysis resulting from mastoid operations, suppurative otitis media of long standing, fractures of the skull involving the petrous portion of the temporal bone, traumatic and operative injury after exit from the stylomastoid foramen and Bell's palsy showing complete reaction of degeneration after several months treatment. The length of time the paralysis existed seems to have no effect on the

cles has a marked bearing on the results, it being quite evident that if the muscle fibers are entirely atrophied, their regeneration and resulting function is less likely to occur even though the nerve regenerates completely. (Taylor and Clark 8).

OPERATION.

It is needless to say that precision of technic

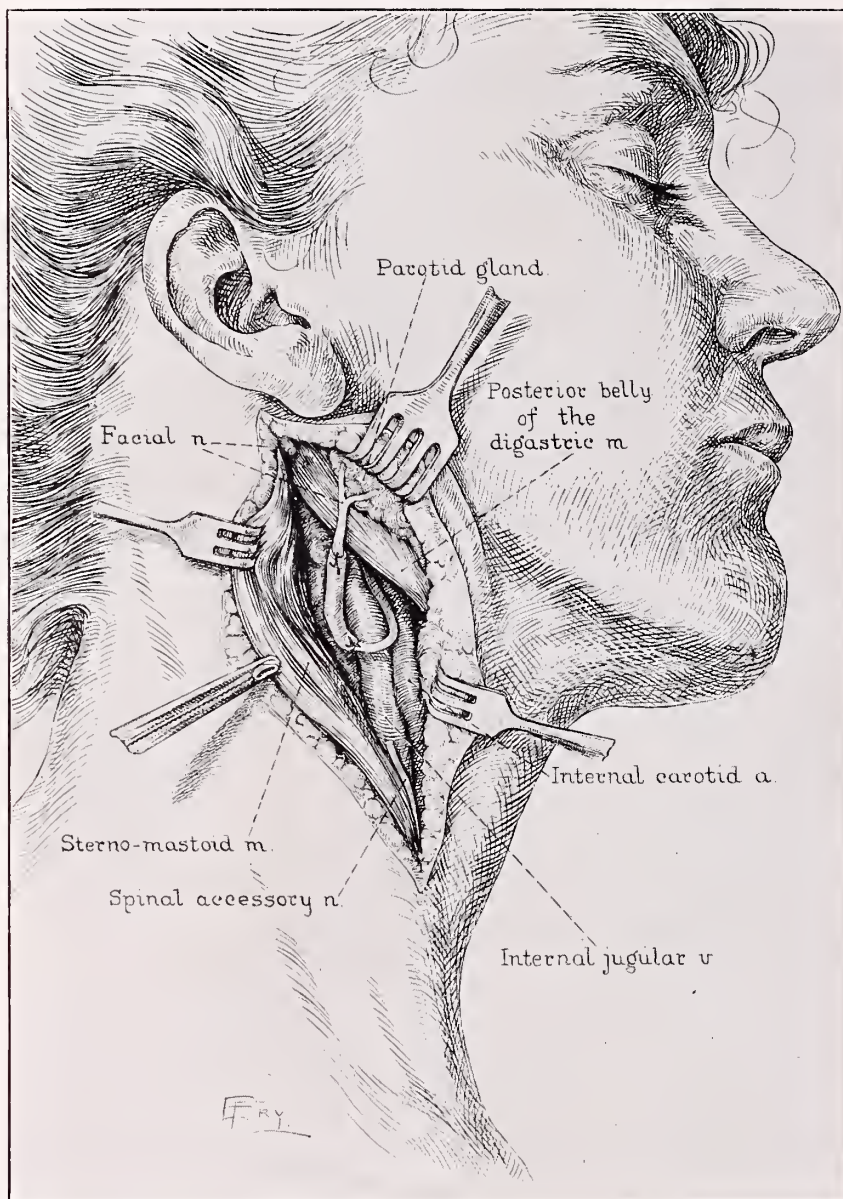


Fig. 1. Anastomosis between proximal end of spinal accessory and distal end of facial nerve covered with a cuff of vein taken from external or anterior jugular vein.

time required for recovery. One cure has been recorded after twenty-nine years of paralysis.

If the muscles respond to galvanism, the prognosis is more favorable though absence of galvanic and faradic response is no contraindication to operation (Murphy 7). The best results are obtained in traumatic cases, neuritis and suppurative diseases being less hopeful. The condition and degree of atrophy of the facial mus-

cles and gentleness of handling the exposed nerves is essential to successful results. The presence of the slightest degree of infection or the formation of scar tissue at the site of anastomosis endangers the outcome. In endeavoring to overcome these complications and to assure a definite uninterrupted path for axone growth, several plans have been suggested:



Fig. 2. (A72332.) Patient at rest, showing face filled out on affected side and no deformity except eye open wider.



Fig. 3. (A72332.) Patient smiling. Note some atrophy of neck muscles due to sectioning spinal accessory nerve.

1. Wrapping the site of anastomosis with cargile membrane.
 2. Surrounding the anastomosis with fascia or muscle (Murphy).
 3. Fresh arteries hardened in formalin (foramitti).
 4. Gelatin tubes hardened in formalin (Lotheisen).
 5. Absorbable magnesium tubes (Payr).
 6. Surrounding the anastomosis with fresh section of vein.
- The last procedure has been used in the Mayo Clinic in three cases and I have not seen it described in the literature. The section of vein



Fig. 4. (A72332.) Forcible closure of eye on affected side and contracture of facial muscles showing nearly normal function.

protects the anastomosis with a thin cylinder which is already lined with endothelium and would seem to protect the sutured ends from the encroachment of connective tissue. In the three cases in which it was used, the restoration of function has been more perfect than in the one case in which the anastomosis was surrounded by fascia and muscle. I am not able to state definitely whether this is due to the technic or simply a coincidence. We expect later to publish the results of experimental work along this line. It is always easy to obtain a section of the facial, external or anterior jugular veins near the field of operation. An inch or inch and a half section of such a vein is slipped over the spinal accessory nerve before the anastomosis

is made and afterwards moved along until it completely covers the anastomosis. In all of our operations, four in number, we have used the main trunk of the spinal accessory nerve and made an end to end anastomosis (Fig. 1). One case has been operated upon too recently to obtain results.

thought to have retracted into the stylomastoid foramen. After freshening the end of the facial, it was united to the main trunk of the spinal accessory by three small silk sutures passed through the sheaths of the nerves after the manner of the stay sutures in blood vessel anastomosis.

Post-Operative History.—It has been difficult to obtain satisfactory information regarding this pa-



Fig. 5. (A72332.) Showing normal use of arm after spinal accessory nerve sectioned.



Fig. 6. (A72332.) Showing slight associated movements of facial muscles when abducting arm.

CASE REPORTS.

CASE 1. (A9150). E. T. M. Male, age 35.

Examined in the Mayo Clinic April 4, 1912. Three months previous he had received a stab wound with a jack knife over the left stylomastoid foramen resulting in immediate and complete left facial paralysis.

Operation.—On April 8, 1912, the distal end of the facial nerve was exposed in the parotid gland and found to be divided just proximal to its main divisions. The proximal end could not be found and was

tient, but on April 22, 1914, in a reply to definite questions, he stated that the left side of his face was much fuller than at the time of operation, that he could more nearly close his left eye than before the operation but that it remained partly open at the inner angle. He also stated that he could partially draw up the left corner of his mouth. Efforts to raise his left arm caused the left corner of the mouth to draw up and the eyelid to quiver, showing that associated movements were present and that partial regeneration of the facial nerve must have occurred. He could chew his food and remove it from his left cheek without any effort, while before

the operation he was obliged to remove it with his finger. His arm was somewhat lame but did not prevent him from performing his usual labors of a farmer. He believed that he was still improving.

CASE II. (A72332). P. H. G. Female, aged 28.

Examined in the Mayo Clinic August 19, 1912. In June, 1911, the patient had a mastoid operation on the right side. Five weeks later a second operation was performed, followed by complete facial paralysis on the right side.

Operation.—On August 23, 1912, the distal end of the facial nerve was severed at its exit from the stylomastoid foramen and sutured end to end to the main trunk of the spinal accessory. The anastomosis was covered with a section taken from the facial vein.

Post-Operative History.—In a letter written January 24, 1913, a little less than four and one-half months before the time of operation, the patient stated that the only motion noticed for several days was that the corner of her mouth pulled back when she raised her right arm. At the present time, five months after the operation, she can retract the corner of her mouth without moving her arm and is able to partially close her eye. I examined this patient in June, 1914. The accompanying photographs illustrate the amount of regeneration and the use of facial muscles (Figs. 2-6). She is still improving and I believe that the function will eventually be restored without any associated movements since these are growing less as time goes on. There is some soreness and very slight disability in the use of the arm, but this also is rapidly disappearing.

CASE III. (A80021). R. G. Female, aged 26.

Examined at the Mayo Clinic February 14, 1913. This is an interesting case because the patient had an aneurysm, probably of the lateral sinus of the right side. For six years she had been deaf in her right ear which had discharged continuously with at intervals severe hemorrhage. There was a pulsating tumor an inch in diameter in the parotid gland just in front of the external auditory meatus due to an aneurysm of the facial artery. She also had an aneurysm of the internal carotid artery on the left side of the neck just below the angle of the jaw producing a pulsating tumor two inches long by an inch in diameter. Right facial paralysis had existed for five years since an operation for a growth in the right auditory canal. Patient thinks she has never closed her right eye since childhood.

Operation.—On February 26, 1913, the external carotid artery and internal jugular vein on the right side were ligated as well as the common carotid artery on the left side just below the bifurcation and also the external and internal jugular veins on the left side.

Post-Operative History.—The patient had an interrupted convalescence from this procedure and on May 12, 1913, an anastomosis was made between the distal end of the facial nerve, which was severed at its exit from the stylomastoid foramen, and sutured end to end to the main trunk of the spinal accessory. On February 4, 1914, nearly nine months after the operation, the patient writes that in the morning on arising she notices that she can close the right eye the same as the other and that there is a little movement on the right side of the face when she talks. Since this time, she has made progressive but slow improvement. The associated movements between the arm and face in this case have never seemed to be at all marked and she was perfect use of her arm except that there is some soreness present.

CASE IV. (A113147). E. G. Female. Aged 46.

Examined August 31, 1914. Patient had been operated on July, 1904 for acute mastoid trouble. A second operation was performed five weeks later and, following this, there was complete facial paralysis on the right side.

Operation.—On September 3, the spinal accessory and the facial nerves were anastomosed. The anastomosis was covered with a section taken from the facial vein.

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RECENT DEVELOPMENTS IN THE PATHOLOGY AND ETIOLOGY OF PNEUMONIA.

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Pneumococci may be found in the mouths and throats of most healthy people. How large a proportion of these organisms are virulent for man is very hard to determine. Man is very resistant to infection by the pneumococcus, and it is apparent that the changes in the lung—the exudation, the consolidation and the fibrin formation—are a protective reaction to prevent the spread of the infection.

Pneumococci are able to reach the blood only in severe cases, and their presence there gives a bad prognosis. The organisms isolated from the blood of these severe cases of pneumonia vary enormously in their virulence for animals. It required 500,000 times as much of a fresh bouillon culture from one patient's blood to kill a mouse as it did from that of another. They have isolated at the Rockefeller hospital four strains or groups of pneumococci which are differentiated from one another, not by cultural and morphological characteristics, but by ag-

glutination reactions and protection experiments.

The natural infection in man is very hard to explain. Recent animal and cultural experiments have thrown much light upon it. If pneumococci are planted in bouillon they will not grow unless very large numbers are used in proportion to the amount of bouillon, while a very small number will grow upon a solid medium or upon filter paper kept moist with bouillon. In order to grow, the germ must produce changes in its immediate surroundings, and if these changes are not kept fairly constant growth cannot occur. In animals pneumonia can be produced by the injection of pneumococci into the trachea only when very large numbers of bacteria and a relatively large amount of the culture material are forced into the smaller bronchi. Meltzer suggests that the infection occurs because the smaller bronchioles are occluded by the culture material, and that the closed cavities formed offer conditions much more favorable to the growth of the germs.

Local changes in the lungs, therefore, are an important factor in determining an infection in man, and it is probable that cold or chilling act to produce pneumonia more by causing an increased secretion of mucus and producing local changes in the lungs than they do by lowering the general resistance of the body.

We have no proof that the organisms causing infection are more virulent than those present in normal throats, and if this were true we would expect more contagion and more epidemics than actually occur. Undoubtedly, diminished general resistance plays an important role, but we know very little of the exact means by which the infection is thus brought about.

The nature of the soluble toxins which pass through the body and produce the general symptoms of the disease has been the subject of much investigation. There is a marked retention of chlorides in all the tissues of the body in pneumonia but the cause of the retention is not known. Pneumococci produce acid readily and Hamburger has attempted to show that the symptoms in pneumonia and the chlorin retention are both due to the acidosis. The more recent work along this line fails to prove that the general manifestations of the disease are due to either of these causes.

An endotoxin has been obtained from pneumococci by placing them in a 2 per cent. sodium cholate in normal salt solution or by simply exposing them to salt solution for 48 hours at 37° C. This toxin produces hemolysis of sheep's blood corpuscles and when injected intravenously into guinea pigs or rabbits it produces death resembling anaphylactic shock. It is destroyed by heating one half hour at 56° C. It can be obtained in pure form and its toxic

effect is neutralized if it is mixed with cholestrin and kept at 37° C. for fifteen minutes. If it is injected immediately after being mixed with cholestrin, or if the injection of toxin is immediately followed by an injection of cholestrin it is not neutralized.

As yet the attempts to explain the crisis in pneumonia have not been satisfying. At present it appears to be more of a true immunity reaction, for it takes about seven days to produce the maximum concentration of antibodies in artificial immunization. Dochez, in 1912, and Clough, in 1913, were able to demonstrate the presence of protective substances in the serum of patients soon after the crisis. These were active only against germs grown from the patient himself, and failed to affect stock cultures. Resolution is due to ferments set free by the breaking down of leucocytes and, according to Lamar, to the formation of soaps of fatty acids.

SYMPTOMATOLOGY, DIAGNOSIS AND PROGNOSIS OF LOBAR PNEUMONIA.

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It is hardly necessary to detail at length the symptoms of a typical case of lobar pneumonia. The sudden onset, usually with a chill, the stabbing pain in the side, the superficial and accelerated respiration, the frequent and troublesome cough, painful and half suppressed, the characteristic tenacious, rusty-looking sputum are all too familiar to need more than mention.

SYMPTOMATOLOGY.

In a well marked case general weakness, headache, complete loss of appetite, restlessness, stupor and delirium may soon appear. The course varies greatly. In a majority of cases, in from three to ten or twelve days improvement suddenly takes place and convalescence is speedy. Severe cases may have a fatal termination, and in a third small class of cases the disease may follow a protracted course.

The pain in the side is due to the accompanying pleurisy and is, therefore, absent in cases of central pneumonia. The pain may be almost entirely in the abdomen and a number of cases have been reported in which the pneumonia was overlooked and an operation for appendectomy performed on account of the severe abdominal pain. Such mistakes can be avoided by paying more attention to the history and physical signs in the chest. A number of cases are also on record in which typhoid fever has been diagnosed because of the abdominal pain, tympanitis and diarrhea. A careful examination of the chest and a widal test would have made the necessary differentiation.

The cough is probably not due to the disease in the alveoli but to the co-existing bronchitis. In rare cases it is entirely absent, especially in the pneumonias of old or debilitated persons and in alcoholics.

The sputum is at times merely tinged with blood and in other cases may consist almost entirely of blood. The typical sputum usually appears towards the end of the first or on the second day, but may not be seen until later or may be absent throughout the disease. The temperature usually rises rapidly, reaching one hundred three to five degrees in a few hours. In children or old persons and in drunkards the rise may be more gradual and in the aged the disease may run its entire course without any fever whatever. Pneumonia has been termed the natural death of the aged and in the great majority of people reaching the age of seventy, life is brought to a close by pneumonia, which often goes unrecognized until found upon the autopsy table.

The crisis occurs most frequently upon the seventh day. It may occur as early as the third. In a recent case of a man seventy years of age with a valvular heart lesion of over forty years standing, in whom I gave a most unfavorable prognosis, the crisis occurred upon the morning of the third day and the patient made a rapid recovery.

DIAGNOSIS.

The diagnosis of lobar pneumonia is ordinarily not difficult. Irregular or atypical cases, however, are often not recognized for considerable periods of time. This is due more to carelessness in making the examination than to anything else, although occasionally mistakes are made when every known expedient has been resorted to. In central pneumonia it is sometimes impossible to be sure of a correct diagnosis for several days. Physical signs may be entirely wanting: but even in these cases the sudden onset, the sharp fever, the increase in the number of respirations per minute, the dyspnea and the character of the cough and expectoration should suggest the probable diagnosis.

The acceleration of respiration is very striking, in adults reaching thirty or forty or even sixty respiration per minute. I have seen a child two years old with a respiration of one hundred per minute for five or six days. In no other disease is the normal pulse-respiration ratio of three and a half or four to one so greatly disturbed and a ratio of two and a half or three to one should always suggest a pulmonary lesion.

In a typical case of lobar pneumonia, there is found over the consolidated area, most frequently over one of the lower lobes, dullness on percussion, increased tactile and vocal fremitus, moist rales and bronchial breathing. Early in

the disease percussion elicits a somewhat tympanitic note, but with increased exudation into the alveoli the resonance becomes dull. But as some air is usually present in the larger bronchi the percussion note never becomes so completely dull or flat as it does over large pleuritic effusions. The sensation of resistance on percussion is likewise much less marked than over a pleuritic exudate. In central pneumonia there may be no dullness whatever.

In the beginning of the disease coarse or fine rales and the characteristic crepitant rales on inspiration may be heard. The crepitant rale, however, is not pathognomonic of pneumonia nor is it heard in every case. When consolidation is complete loud bronchial breathing is heard.

A considerable number of cases are not typical in their findings, especially when the disease does not develop in the normal manner. Bronchial breathing may not make its appearance for several days and dullness may be hard to make out. Even in these cases, however, tactile fremitus is usually increased, and the finding of feeble vesicular breathing on one side with the typical history and blood stained sputum should suggest the diagnosis. In cases in which the bronchial tubes are filled with exudate, bronchial breathing and tactile fremitus may be diminished or entirely absent. In some cases the signs of consolidation do not appear until after the crisis is past.

Pneumonic consolidation must be distinguished from pleurisy with effusion, the symptoms of which sometimes very closely resemble those of pneumonia, although in the latter the cough and pain are more distressing, the dyspnea greater, the temperature higher and the sputum characteristic. Tactile fremitus and voice sounds are usually increased in the pneumonia of adults and diminished or absent in pleuritic effusions. Bronchial breathing may be heard in both diseases but is usually feeble when occurring in pleurisy and loud in pneumonia.

In pleuritic effusions of the left side the diagnosis is aided by the finding of obliteration of Traube's space and the presence of dislocation of the heart to the right, which conditions are never caused by a pneumonia.

The diagnosis between pneumonia and pleurisy with effusion in children is sometimes difficult. In them bronchial breathing is perhaps the rule over a pleural exudate and tactile fremitus is very apt to be absent. In these cases percussion usually gives definite information and is of very much greater value than auscultation. This is especially the case if the dullness extends over the entire side. The fluid is not always at the bottom of the pleural cavity pushing the lung up and back, but may be spread out in a thin layer a quarter or half an inch thick between the lung and the chest wall, giv-

ing rise to dullness over the entire side. You never find dullness all over one side in pneumonia.

Such extensive dullness is never encountered in children excepting in pleurisy with effusion. All other signs are often misleading. The more fluid there is in a chest, the louder may be the bronchial breathing, for the lung is pushed upwards or in towards the spine in which condition it becomes a good medium for the transmission of sound, and as fluid is also a good conductor of sound, beautiful bronchial breathing is the result. I have often made the diagnosis of pleurisy with effusion in both adults and children by percussion alone. When the fluid is small in amount and the lung not compressed, bronchial breathing may not be heard. It is this presence of bronchial breathing over fluid that causes a pleural exudate so often to be mistaken for a consolidated lung.

The auscultatory signs in these cases may vary greatly. Every kind and degree of bronchial breathing may be heard. Even vocal resonance and tactile fremitus may be present over an effusion and one will sometimes hear the most beautiful pectoriloquy. But one sign can always be depended upon, namely, the wooden character of the dullness on percussion. No amount of infiltration of the lung can give rise to that degree and quality of dullness that constitutes the most reliable sign in differentiating between these two conditions. One should be sufficiently expert to be able to make the diagnosis without the necessity of resorting to exploratory puncture.

It sometimes requires several days to diagnose between lobar pneumonia and acute pulmonic tuberculosis or galloping consumption which may set in with a chill and other symptoms of lobar pneumonia. *Primary* tuberculous pneumonia is a rare disease, and the history of previous tuberculosis with the difference in the symptoms and course of the disease, and the information derived from an examination of the sputum, usually enable us to make a diagnosis at a time when it would be impossible to do so from physical signs alone.

In some cases unfavorable constitutional symptoms such as anemia, debility and tuberculous tendencies appear to retard resolution which may be delayed several weeks or even two or three months. During this time there may be more or less elevation of temperature and a continuation of dullness and bronchial breathing. Unresolved pneumonia, however, very rarely if ever ends in consumption so that in cases in which resolution is delayed for many weeks, especially in children, the anxious relatives may be assured with a great deal of confidence that the case is not likely to terminate in tuberculosis. Osler says that the instances of acute phthisis which have followed an acute

pneumonic process have been tuberculosis from the outset.

Almost all cases of pleural effusion that follow pneumonia are purulent in character and due to the pneumococcus. Serous effusions are usually tuberculous, and in spite of their tuberculous etiology the prognosis for immediate recovery is good.

Abscess of the lung, pericarditis, endocarditis and meningitis are the most frequent complications of lobar pneumonia. Embolism, thrombosis, cerebral hemorrhage and encephalitis occur less frequently. The diagnosis between meningeal symptoms due to the presence of the pneumococcus and true meningitis is sometimes very difficult. The stiffness of the back and neck, pain in the head, stupor and coma are normal to both conditions. The diagnosis can frequently be made only by the aid of lumbar puncture.

Heart failure constitutes one of the most serious complications and is more apt to take place about the time of the crisis, so that this is the most dangerous period of the disease and is the time when we should see our patient most frequently. A blood pressure appreciably below the normal is of unfavorable significance and any considerable fall suggests danger. As the crisis approaches, therefore, the blood pressure should be taken sufficiently often to detect the first signs of a failing heart in order that the necessity for stimulants and heart tonics may be determined before the pulse or heart sounds indicate their need. By delaying the use of stimulants too long many cases may be lost. They should be given in sufficient amounts to maintain the blood pressure at a slightly higher point than the pulse rate.

PROGNOSIS.

The prognosis depends upon, first: The patient's age, becoming worse with advancing years. Second. The amount of lung involved. Third. The general character of the symptoms. A very high temperature—105° or over—is exceedingly fatal, while an abnormal temperature may indicate either a mild attack or deficient resistance. Pneumonia is more frequent in men but more fatal in women. The habitual use of alcohol renders the prognosis more unfavorable as is shown by the following table:

Pneumonia—428 Cases.

	Died	Per-centage Dying	Per-centage Recov'd	Per-centage Recov'd
Markedly alcoholic	36	70	15	29
Moderately alcoholic	52	32	109	67
Non-alcoholic	45	20	171	79

The right lung is more frequently implicated and also gives a higher mortality.

Alfred Loomis used to say that the prognosis

was bad with a pulse of one hundred twenty or over. A sudden drop in blood pressure is of serious significance. A slow gradual decline of twenty millimeters or more indicate asthenia and calls for strychnia.

Gibson, of Edinburgh, has called attention to the fact that when the blood pressure falls below the pulse rate the outlook is unfavorable. When the arterial pressure expressed in millimeters of mercury equals or exceeds the pulse rate expressed in beats per minute, the condition of the patient may be regarded as favorable.

Any irregularity or inequality of the pulse and any change in the character and intensity of the heart sounds are of significance as presaging the advent of heart failure.

McKenzie says: "In all cases that I have met with, when the pulse showed even an occasional irregularity before the crisis was reached, death supervened. I have not found a single exception to this rule for over ten years; and while extended experience may prove it fallacious, irregularity of the pulse with pneumonia must at all events be looked upon as a serious symptom. In pneumonia the amount of arterial pressure, the rate of the pulse and its rhythm, are each of them the most important indication we possess. Within a few hours after the initial rigor the fatal issue may be too plainly foretold by the character of the pulse. I have rarely seen an adult with a pulse of over one hundred forty that recovered."

The character of the second pulmonic sound is of great significance. The pulmonic second sound becomes accentuated when the tension in the pulmonary artery is increased and is a measure of obstruction in the lung on the one hand, and of the power of the right ventricle on the other. If this accentuation becomes less marked, it is either because the obstruction is diminished which is a favorable sign, or because the right ventricle is becoming weaker with all that this implies. Which of these two conditions is present is easily determined by the general symptoms. Failure of the right heart as indicated by weakening of the second pulmonic sound with increase of the heart dullness to the right of the sternum is a most unfavorable sign. The late A. H. Smith used to say that he had never seen a case with a sharp distinct second sound over the pulmonary artery in which a favorable prognosis as to the immediate future of the patient was not justified.

In most cases of pneumonia leucocytosis is present, numbering from fifteen to forty thousand per cubic centimeter. The increase is usually proportionate to the rise in temperature and represents the degree of infection present. A moderate leucocytosis of from fifteen to twenty thousand points to a mild attack with sufficient resistance on the part of the patient to give a

favorable prognosis, while a count of from twenty to sixty thousand indicates a much more serious form of disease. An absence of leucocytosis shows that the patient has not sufficient power to react and renders death from toxemia probable.

The presence of pus in the sputum is also of unfavorable import as is also the absence of sputum altogether.

Likewise when the digestive system is disturbed, when disturbances of the alimentary tract or severe abdominal distress or tympanitis appear, the prognosis is rendered more unfavorable.

Great restlessness, sleeplessness, hyperpyrexia, severe headache and violent delirium suggest severe intoxication and are causes of anxiety.

THE TREATMENT OF PNEUMONIA.

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In this paper the treatment of acute lobar pneumonia in the adult only will be discussed. A specific therapy for pneumonia either by biological or chemical products is the aim of modern investigation. The various forms of specific therapy that are before the profession, at the present time, are in the experimental stage.

SERUM THERAPY.

A soluble toxin elaborated by the pneumococcus has not been demonstrated. Therefore an antitoxic serum for pneumonia such as diphtheria antitoxin or tetanus antitoxin cannot be produced.

An antibacterial serum produced from animals actively immunized against the pneumococcus has been found by various experimenters to have a favorable influence upon the course of pneumonia in man. The most notable work in this field is that of Neufeld and Handel (1), in Germany, and that of Dochez and Cole, of the Rockefeller Institution. The studies of the latter observers indicate that while a large majority of cases of lobar pneumonia are due to the pneumococcus, at least four different strains of this organism can be isolated. "From the point of view of specific therapy this is equivalent to saying that they are due to at least four different organisms." (Cole).

To effectively apply serum therapy in a given case of pneumonia it is necessary therefore to know the strain of the infecting organism in that particular case. The method of identification of the strain of the organism and the exhibition of the serum specific for this strain is, at the present time, not practicable outside of well equipped hospitals and laboratories.

VACCINE THERAPY.

The reports of the treatment of pneumonia by a pneumococcus vaccine, prepared in the ordinary way, are conflicting and are received with suspicion by both bacteriologists and clinicians. Rosenow and Hektoen have developed a modified vaccine prepared from pneumococci autolysed in salt solution. The soluble portion is toxic, has little immunizing power and moreover, actually interferes with the development of antibodies in animals. The insoluble, non toxic portion has marked antigenic properties, and is more active in protecting animals than vaccine prepared from the whole pneumococci. The autolysed vaccine of Rosenow and Hektoen is available, under restriction, for use by the profession. From the results of the use of this modified vaccine in a series of controlled cases of pneumonia, Rosenow and Hektoen believe that this method of treatment is of distinct value.

A limited personal experience in the treatment of pneumonia with serums and vaccines other than those mentioned has been unsatisfactory.

The leucocyte extract of Hiss has had a limited experimental use in the treatment of pneumonia. The method is an attempt to artificially increase a type of immune bodies and is deserving of further study.

SPECIFIC TREATMENT BY DRUGS.

The various remedies brought forward as specifics for pneumonia in the past have not stood the test of wide experience. At present but one remedy, quinine, has any considerable support in the United States. At different times quinine has been advocated as a specific for pneumonia and forgotten.

Galbraith, Petzold, Henry and S. Solis Cohen are its recent advocates. Cohen's method of administration is to give hypodermically an initial dose of from 15 to 25 grains of quinine and urea hydrochloride, the dose regulated by the height of the temperature and the severity of the other symptoms, and to follow this in three or four hours by a second injection. A third injection may be given some time within the first twenty-four hours. This dosage is repeated on the second day and on the third day, if necessary. Usually from 90 to 150 grains are given in from 48 to 60 hours. After that the remedy may be given in doses of 5 to 10 grains by the stomach during the active period of the disease.

"Cinchonism does not develop. Temperature and pulse-rate fall gradually and proportionately, and respiration more rapidly, with a tendency to restoration to the normal pulse-respiration ratio. Blood pressure may at first decline with temperature and pulse frequency, but soon returns to the former or a higher level;

often it remains stationary or increases. The complete clinical picture, so far as regards the rational symptoms, objective and subjective, is thus favorably changed. The patient professes comfort; the pulse is full and strong, of moderate frequency and good tension; respiration is astonishingly easy, even when the rate is not markedly altered; the cough is greatly diminished; the delirium, if present, is abated, or may even cease. Crisis does not occur. Termination is by lysis at about the ordinary time, five to twelve days. The only critical phenomenon observed, and this but rarely and in slight degree, is perspiration. Usually there is some mild sweating with the early fall of temperature and respiration.

"Percussion and auscultation signs, however, are uninfluenced. Even when the case is seen and treated comparatively early, dullness and bronchial breathing increase. The rales of resolution appear at the usual time, but not earlier. Involvement of new areas may take place during treatment, with return of symptoms, necessitating new injections.

"The most striking results of the larger doses of quinine are thus functional; and since the most significant features are the relief of respiration and the maintenance of normal cardiac vigor and blood pressure, it seems logical to infer that the effect is chemical and antitoxic. This view is further borne out by the absence of quinine intoxication, suggesting a mutual neutralization of disease-poison and drug. It may be, however, that the antitoxic action is indirect; or that the drug acts, in part at least, as a direct stimulant to the autonomic cardio-respiratory centers.

"In making the injection the following precautions must be observed, otherwise there may be cellulitis, slough or abscess. The syringe is filled with a 50 per cent. solution of quinine and urea salt in sterilized water, and the needle is inserted deeply, through skin previously painted with tincture of iodine, into a muscle. The syringe is emptied thoroughly so that the solution does not drop upon the skin when the needle is withdrawn. The point of puncture is sealed with iodoform-collodion. Thousands of injections have been made in this manner without ill result of any kind."

In the few cases that I have had an opportunity to begin the administration of quinine and urea-hydrochloride early, a critical observation leads me to believe that the course of the disease in these cases has been modified by it after the manner detailed by Cohen.

While we are searching for, or perhaps trying out, a specific remedy a rational therapy of pneumonia based upon our pathological knowledge and clinical experience must be our recourse.

Lee of London well says: "Every case of

pneumonia is a fight for life." From his first visit, regardless of the apparent vigor of the patient and the benign onset of the disease, the physician must have in mind the dangers he almost certainly will have to combat in the week or ten days before convalescence begins. Every possible danger should be considered early. Every accident anticipated. Events move rapidly in pneumonia and preparations to meet its various emergencies must be made early and with deliberation, that everything may be in readiness for immediate use when necessity arises.

Our therapy may, perhaps, best be illustrated by detailing the sequence of events in a typical case of severe pneumonia in a patient of average vigor, terminating by crisis on the 7th to 10th day.

The patient is first seen a few hours after the initial chill. The work of the first twenty-four hours is the preparation of the patient and his environment for the short but grave illness that has begun. An efficient nurse is an immediate necessity and later on, if possible, another should be added. Here economical questions and personal preferences must be put into the back ground. The situation is too grave to admit of hesitation or delay.

Every detail of the sick room should be given thoughtful attention. Every convenience for rapidly and quietly caring for the needs of the patient should be provided. A room that can be made into a fresh air chamber is the ideal. The temperature should be from 60° to 65° Fahrenheit with a rapidly changing air. The beneficial influence in the course of pneumonia of an abundance of fresh air is unquestioned. Fresh air, however, is not of necessity cold air and vice versa. Debilitated patients, the aged and the very young should not be exposed to too low a temperature; 60° should be the limit. A lower temperature makes nursing difficult, unwisely exposes the attendants and there is no good evidence that it is of benefit to the patient. Patients with pneumonia recover just as well or better in the fall and spring months when warm weather makes a reduction of the temperature of the sick room below the seventies impossible.

The routine of the diet should be prescribed. For the first twenty-four hours, the simplest and blandest liquid foods should be given. Diluted milk, a cereal gruel, or a delicate broth, not to exceed six ounces in quantity, may be given every third hour or less frequently if an irritable stomach marks the onset. A liberal quantity of water, plain or carrying an agreeable fruit juice sweetened or not, as the taste of the patient indicates, should be prescribed.

A cathartic may be the first medication; castor oil, calomel followed by a saline, a saline alone, or a compound cathartic pill. The chill, the pain, and the toxic shock of the infection

may demand a single hypodermic injection of morphine. Dover's powder in tincture, two to five minims, with one or two drachms of solution of potassium citrate, may replace the morphine to relieve pain, cough and restlessness. This combination has the added value of a diaphoretic and diuretic. In the event of sharp pleuritic pains, the ice bag, a cold coil or dry cups may be applied. Fixation of the chest by careful strapping gives relief. Cold may be disagreeable. A hot water bag or a transient hot stupe often relieves where the ice bag fails.

In this early stage shall we bleed? I should say no. In studying pneumonia case records of the old bleeding days, the relief recorded is shown to be too transient and the permanent benefit too doubtful to risk such sacrifice.

We have now outlined a rational plan of procedure for the first day of the disease. If a specific treatment is to be given this is the time to begin. The method of Cole is not now available. Rosenow's vaccine may be obtained for experimental observation. Stock pneumonia vaccines and serums are on the market. Quinine is accessible to all and my present experience justifies me in urging its administration after the method of Cohen. It should, however, supplement, not replace other treatment.

The three or four days succeeding the day of onset is the period of conservation of the patient's vitality for the struggle against the increasing toxemia that will soon threaten to destroy life with respiratory or circulatory failure. Our therapeutic energies will be devoted to the maintenance of the functions of the nervous system, of nutrition and of elimination.

Pain must be relieved and sleep promoted. One-half to one grain of codein hypodermically at night to favor sleep. The Dover's powder of the first day may be demanded, or rarely, a repetition of the morphine. Opiates must be used with caution and only to meet a distinct indication. In certain cases sodium bromide will be an efficient sedative and I have found veronal a safe and reliable hypnotic, alone, or in combination with codein or sodium bromide. Restlessness, insomnia and delirium are toxic phenomena. The abundance of cool fresh air of modern therapeutics, the ice cap, or a tepid bath will relieve toxemia and diminish the necessity of drugging for sleep.

During this period digestion, nutrition and elimination demand close attention. Wasting is very rapid in pneumonia. Starved tissues elaborate antibodies with reluctance, and fall an easy prey to an invading infection. Therefore nutrition must be held to the highest point.

Acute colitis frequently attends pneumonia and with its flatulence and toxic absorption may be a complication requiring careful consideration.

The diet should receive strict supervision. A

calorie content of at least 2000 or more with 60 to 80 grams of protein are demanded to hold up nutrition. Milk properly diluted, modified or fermented may be the staple. Cereal gruels, broths, and meat juices, egg white, whole eggs, jellies and ice cream are available nutriment. Fruit juices carrying a good quantity of sugar of milk are grateful and nutritious, although some febrile stomachs do not endure them well. From six to eight ounces of fluid food should be given every two, three or four hours. Food and the administration of medicine and all disturbing attentions should be so timed that they come together and give the patient two, three or four hours of continuous rest. Sleep should not be interrupted. Flatulence embarrasses the heart and respiration and should be relieved promptly. Aromatic ammonia, camphor, chloroform water, are useful. Enemas, stupes, or the colon tube may be required.

During this period elimination should be favored. A gentle laxative or enema should be given daily. Renal excretion may be stimulated by a refrigerant alkaline diuretic, such as solution of potassium citrate and an abundance of water.

The fever of pneumonia rarely requires direct treatment. Antipyretics and cardiac depressants find no place here— 102° to 104° is the normal temperature range of pneumonia. It is the toxemia of pneumonia, not the temperature that is dangerous. Hyperpyrexia is rare and is best met by hydrotherapy.

From the fourth or fifth day on is the period of danger from circulatory or respiratory failure. The respiration, the heart's action, the pulse, and the blood tension should be carefully watched for evidence of weakness. A pulse of 110 to 120 is ominous. An occasional extra systole may be the first warnings of a gravely poisoned myocardium. A cyanosis or the rales of edema may warn us of a dilating right ventricle. A falling blood pressure is evidence of vaso-motor paresis. Modern pathology teaches us that, in the circulatory failure of pneumonia, the heart alone is rarely at fault. This is reasonable. A previously healthy heart would not often succumb so quickly to myocardial inflammation or degeneration. Toxic vaso-motor paralysis in the splanchnic area is the factor of primary importance in the circulatory failure of pneumonia. The heart pumps its blood into the stagnant splanchnic pool and dies of acute anemia.

What are the resources of therapeutics to arrest this advance of vaso-motor paralysis and myocardial weakness and hold up the circulation until the crisis is past? We take it for granted that up to this time every effort has been made to limit toxemia, to conserve the strength, to support nutrition and to quiet the nervous system.

In the order in which their administration may be begun vaso-constrictors and cardiac tonics may be enumerated as follows: camphor, strychnine, digitalis, caffeine, enteroclysis, adrenalin.

Early in the second therapeutic period of pneumonia, the period of conservation, camphor may properly be given by the stomach. Two or three grains in capsule may be given every four hours. It is promptly absorbed and is an efficient nerve sedative, carminative and mild vaso-motor tonic. German authorities attribute to it a specific action on the pneumococcus. Later, urgency and certainty of action demand administration subcutaneously.

Strychnine does not warrant the confidence too often given it to the neglect of more important remedies. In conditions of grave circulatory failure it should give way to others.

Digitalis hold a high place in the therapeutics of circulatory failure. When the condition is primarily cardiac, digitalis finds its proper place. A tired myocardium laboring and dilating under the overstrain incident to pulmonary obstruction may respond to digitalis. Unfortunately the febrile heart is refractory to digitalis stimulation, and too often its action is disappointing. When given early the infusion, two drachms every six or eight hours should be the dose. Later hypodermic administration of digipuratum or digalin should be selected. Digipuratum or strophanthin intravenously is a desperate resort but may be life saving.

Caffeine is an active cardiac tonic and a safe vasoconstrictor stimulant and may be given in full doses subcutaneously, two or three grains every three, four, or six hours.

Enteroclysis is often a life saver in conditions of splanchnic over-distension. Locally it stimulates vasoconstriction; absorbed, it fills collapsed vessels, dilutes the circulating toxins and stimulates their excretion by the kidneys. Food in the form of glucose, maltose or alcohol may be added to the normal saline.

In adrenalin we have a vaso-motor constrictor remarkable for its prompt and efficient action. Its selective action is on the splanchnic area. It is then, the ideal remedy to combat the vaso-motor paresis of pneumonia. I feel sure I have seen it tide a patient over the critical period of pneumonia when all clinical signs pointed to impending circulatory failure. Ten to fifteen minims of the 1-1000 solution diluted with one or two parts of normal saline solution may be injected intra-muscularly or preferably, intravenously and repeated every one, two or three hours for several doses. Its well known transient action has been cited as an argument against its use. Even though transient in action it pushes blood from the splanchnic area to the nerve centers and the myocardium and gives

them a chance to regain their functional activity.

DIFFUSIBLE STIMULANTS.

The cardiac asthenia of the late days of pneumonia demands equal consideration with vaso-motor paralysis as a factor in the production of circulatory failure. The relative importance of these two conditions may differ in different cases. In one, the vaso-motor paresis, in another, the cardiac asthenia is the dominant factor. The vaso-motor stimulants above noted act directly and indirectly as cardiac stimulants.

In periods of stress when it is necessary to sustain the tired, toxic myocardium, diffusible stimulants will be demanded. Moderated doses, fifteen minims, of aromatic spirits of ammonia, compound spirits of lavender or compound spirits of ether should be given at short intervals every hour, half hour, or more frequently if urgency is great. Here also alcohol has its place. One-half ounce of brandy, or its equivalent in sherry or champagne, every one or two hours during an emergency may hold up a patient for the twenty-four or thirty-six hours necessary for him to struggle through his crisis.

Such a consideration of so many measures is suggestive of polypharmacy. Unable as we are to analyze the factors of circulatory failure in the order of their therapeutic importance, a judicious polypharmacy is justifiable. Action must be rapid, and time is not given clinically to try one remedy after another.

At any period in the course of pneumonia, pulmonary edema with or without right ventricle failure may demand energetic treatment. Digitalis and atropia are indicated.

In conditions of heart dilatation with systemic and pulmonary stasis the question of bleeding may arise. Opportunely performed when the mechanical and not the toxic factor is predominant, blood letting may save life. In my personal experience, however, I have never been fortunate enough to see such a result.

CONVALESCENCE.

A proper appreciation of the damage done to the lung parenchyma by the exudative inflammation and to the cardiovascular system by the pneumonia toxin will guide the physician in the care of the convalescent period.

Rest and quiet until complete restoration of cardiac and vascular integrity are necessary.

A careful dietary, tonics, restricted exercise, and a thoughtful supervision of all the patient's functions and activities will be demanded for a number of days. In conditions of serious cardiac weakness or unusual delay in pulmonary resolution the period of convalescence may demand thoughtful medical care for quite a period.

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PLEURITIC EFFUSIONS AND EMPYEMA SUBSEQUENT TO OR CO-INCIDENT WITH PNEUMONIC ATTACKS.

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Pleurisy of some degree is an invariable accompaniment of typical lobar pneumonia. In fact, of the three cardinal symptoms—chill, fever and lancinating pain in the side—the last and most important is due directly to the pleural involvement. From an anatomical standpoint it would indeed be strange if a disease process involving suddenly an entire lobe would not also affect the pleural covering of that lobe at some point. It is only in the atypical central pneumonias or those occurring as apical attacks in the aged or in alcoholics that signs of pleural involvement are frequently wanting.

As has been stated, the characteristic pain occurring at the outset of pneumonia is pleural in type. It is described as sharp lancinating or knife-like and is increased by deep breathing or cough, both of which result in increased pleural excursion. Although the pain is usually referred to the area of pulmonary and pleural involvement it may in rare cases be present on the opposite side. In the very beginning of the attack the dyspnea and increased shallow respiratory movements are due more to the attempt on the part of the patient to relieve pleural pain than to deficient aeration through extensive pulmonary involvement. That this is the case is shown by the rapid relief of respiratory embarrassment following the use of anodynes. However, these signs are soon overshadowed completely by the symptoms arising from the increasing pulmonary involvement.

With regard to the degree of pleural inflammation associated with pneumonia and due, primarily at least, to pneumococcus infection, it may be stated that it ranges from a slight

roughening of the pleural surface through the deposit of a small amount of fibrinous exudate to the more or less complete filling of the pleural cavity with purulent material. Ordinarily the pleural involvement associated with the beginning of the disease is of the dry plastic variety and is evidenced clinically only by a transitory friction rub at the site of involvement and the associated pain, the signs of the presence of fluid in the pleural cavity being absent. However, it must be remembered that it requires the presence of at least 400 cubic centimeters of fluid in the pleural cavity before physical signs become manifest, and it is highly probable that there is always a small amount of exudate in the cavity of the involved side. Thus, Maraglinano demonstrated the presence of sero-fibrinous or fibino-purulent exudate in 65.5 per cent. of cases of typical lobar pneumonia in which he employed exploratory puncture without regard to the physical signs. Norris states that pleural effusion was diagnosed clinically in 6.26 per cent. of 24,511 cases and was found at autopsy in 41.58 per cent. in 974 cases. Kerr reported pleurisy present in 69 per cent. of 178 autopsies on cases of pneumonia. In this series, 74 of the pleurisies were classified as fibrinous, 38 as sero-fibrinous and 6 as acute purulent.

With regard to the character of the pleuritic exudate caused by the pneumococcus it is usually fibrinous, sero-fibrinous in which case the amount of fibrin is very abundant or purulent. The clear straw colored serous exudate so characteristic of tuberculous pleurisy rarely if ever results from a pneumococcus infection of the pleural cavity.

DIAGNOSIS OF EFFUSION.

With regard to the diagnosis of coexistent pleural effusion and pneumonia the physical signs are frequently very confusing. Thus, whereas in a typical case of lobar pneumonia we have dullness and harsh bronchial breathing over the affected area with increased vocal fremitus, in the so-called massive pneumonia associated with plugging of the larger bronchi, there is an absence of breath and voice sounds; the physical signs being identical with those due to pleural effusion.

Skodaic resonance may be present both above effusion and above consolidation as well. The whispered pectoriloquy described by Bacelli as well as a peculiar nasal twang to the spoken voice often heard over the clear serous effusions of tuberculous disease is of no value in the case of pneumonie pleurisies, the majority of which when accompanied by much fluid are purulent or at least exceedingly rich in fibrin. Distant tubular breathing may suggest either pulmonary involvement not extending to the surface or interposed fluid. Under these circumstance,

however, the results of light percussion should give definite information. Where bronchial breathing at first harsh and sharply defined subsequently becomes muffled and distant without signs indicative of resolution the presence of fluid in the pleural cavity should be suspected, although extension of the disease process to the larger bronchi may also produce the same result. In such cases the use of the exploratory needle is necessary in order to arrive at a diagnosis. Displacement of the heart, liver or spleen is always suggestive of pleural effusion. Roentgenograms should be obtained if possible in all doubtful cases.

Pleuritic involvement associated with pneumonia may conveniently be considered under two heads: 1. Pleurisy coincident with the pneumonic attack, the so-called para-pneumonie pleurisy and, 2. Pleurisy subsequent to the attack the meta-pneumonic pleurisy. By far the great majority of pleurisies belong to the first class. Para-pneumonic pleurisies may be either dry-fibrinous, sero-fibrinous or purulent in type. The prognosis of this class is good, the attacks usually ceasing coincident with the clearing up of the pulmonary condition. This is certainly familiar to all in connection with the plastic variety and Gerhardt has recently reported four cases of suppuration in the pleural cavity occurring early in the febrile stage of the disease without undue aggravation of symptoms, the pneumonia following the usual course. The empyema was, however, slight in extent and no micro-organisms were found in the scanty pus. In a fifth case, avirulent pneumococci were found. Gerhardt thinks that even para-pneumonic empyema tends to spontaneous absorption if slight in extent and probably frequently escapes detection.

Although our knowledge of the mechanism involved in pneumococci immunity is slight, clinical evidence seems to justify the view of the establishment of a temporary immunity associated with and immediately following the crisis in uncomplicated cases. Thus Dochez demonstrated the presence of protective substances in the blood of nine out of ten patients. The time of the appearance of these substances varies, but in seven cases they appeared for the first time or showed marked increase in amount immediately following the crisis. Clough obtained similar results in nine of twelve cases. It is a matter of common knowledge that cases in which a classical crisis occurs are less apt to suffer from subsequent affection of the pleura than are those in which recovery occurs gradually. Pneumococci pleurisies following attacks of pneumonia appear to bear a relation to the original attack similar to that of localized infection of the gall-bladder with the specific organism subsequent to recovery from an attack of typhoid. In both instances

we are dealing with local infection of tissues which for some reason do not partake of the general body immunity.

Meta-pneumonic pleurisy with effusion may become evident either during the decline of the pneumonic attack or after full convalescence has apparently been established. As a rule they are of the suppurative variety, the pus obtained through exploratory puncture being greenish-yellow in color, thick, creamy, homogeneous and usually without odor. The presence of pneumococci can be demonstrated in the purulent material provided the empyema is not of long standing. The pus may be found free in the general pleural cavity or encysted and walled off by adhesions as in the case of the interlobar or diaphragmatic forms of empyema.

As the tubercle bacillus is the chief factor in the development of pleurisy with serous effusion so does the pneumococcus rank first as a cause of suppurative pleuritis. This is especially true in the case of children where 75 per cent. of all empyemas can be attributed to the pneumococcus as the etiological factor. Fraley reports that fifty-three of ninety-five cases of empyema followed a preceding attack of pneumonia, thirty-five of these following immediately after the original pneumonic attack. As in cholecystitis caused by the typhoid bacillus so in empyema due to the pneumococcus we may have repeated attacks separated by long intervals of time. Thus, Comby has recently reported two cases of empyema in patients aged four and fifteen years respectively in which complete recovery apparently occurred. Two years later both cases developed a pneumococcal empyema in the area previously affected.

SYMPTOMS OF EMPYEMA.

The development of meta-pneumonic empyema is rarely accompanied by the symptoms of acute illness. Its occurrence is particularly difficult to detect when it develops during the recovery from the pneumonic attack by lysis. The fever associated with empyema possesses no definite characteristics. It may be hectic in type and associated with night-sweats, or, there may be no rise of temperature whatever. It is astonishing to note the large collections of pus occasionally found in the pleural cavity associated with no other symptoms than a slight afternoon or evening temperature such as occurs in early tuberculous disease and accompanied by the marked anemia and pallor so characteristic of long standing suppurative processes of low virulence. Pain in the affected side is not frequent and dyspnea is rare except in cases of a large amount of effusion. A chill, or more frequently chilly sensations alone, may occur at the outset of the attacks. Recurring leukocytosis after a post-critical fall should always be regarded as

very suspicious and should call for careful physical examination with reference to the possible accumulation of pus in some portion of the pleural cavity.

Inter-lobar empyema may give signs suggestive of pulmonary consolidation, delayed resolution or tuberculous infiltration. In such case Roentgenograms are invaluable in arriving at the correct diagnosis.

The physical signs of empyema are those of pleurisy with effusion. Edema of the chest wall so frequently associated with empyema of streptococcal origin rarely occurs in association with pneumonic purulent effusion.

The prognosis of pneumonic empyema is good provided proper surgical measures be employed for the removal of pus. Empyema of long standing may terminate spontaneously by rupture into a bronchus with the expectoration of the purulent material or by external rupture between the ribs.

Concerning the treatment of pneumonic pleurisy but little can be said in a medical way. The dry plastic pleurisy associated with the commencement of the pneumonic attack may be relieved by the proper strapping of the affected side with adhesive plaster—the resulting limitation of motion frequently affording the patient great relief from pain and tending to keep the inflamed pleural surface at rest. The application of an ice bag to the chest wall over the inflamed pleura appears to be of benefit in some cases. Meta-pneumonic empyema may occasionally fail to recur after thorough aspiration of the purulent material. However, the tendency of such empyemas to remain latent over considerable periods of time would justify early surgical intervention with the establishment of free drainage.

PNEUMONIA MORTALITY AND PREVENTION.

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With the coming of the cold weather we must expect the advent of Michigan's greatest destroyer of life, pneumonia, hence a few pertinent facts are submitted for the information of the public and consideration of the physicians.

Averaging the mortality statistics of Michigan, collected under the new law, for the fourteen years, 1898 to 1911, the order of importance of the most dangerous communicable diseases, as causes of death, was as follows: Tuberculosis, Pneumonia, Typhoid Fever, Meningitis, Diphtheria, Whooping Cough, Scarlet Fever, Measles and Smallpox. The statistics of 1913, not yet made public, will show pneumonia first, tuberculosis, second. The very active campaign

instituted by the State Board of Health and the various Anti-Tuberculosis societies, throughout the state has reduced the death rate in pulmonary tuberculosis nearly 9 per cent. within the past five years, but pneumonia has increased, as will be seen by the following table:

PNEUMONIA.

Year	Population	Cases	Deaths	Death Rate Per 100,000 Population
1908	2,639,050	3,177	2,502	87.7
1909	2,666,309	3,142	2,563	85.0
1910	2,810,173	3,671	3,016	99.1
1911	2,856,866	3,452	2,887	96.7
1912	2,903,559	3,592	2,654	91.4
Five Year Average	2,775,191	3,407	2,724	92.0
1913	2,950,251	3,681	2,912	98.7

Some allowance must be made for increase in population, but with this deducted, the fact that pneumonia is carrying off more of our people than any other disease remains. Some very interesting comparisons are furnished by computations going on in this office, but they are too extensive to admit publication in a brief article.

The vigorous attitude assumed by the State Board, within the past five years, towards collecting morbidity reports, has brought to light an increased number of cases of tuberculosis, the total number for 1913, being 6,772, as against 3,681 pneumonias. The death rate from pulmonary forms of tuberculosis for 1913 is 71.7 per 100,000 population, while in pneumonia it is 98.7 per 100,000 population.

Season and age plays a very prominent part as follows:

Seasonal prevalence shows greatest number in February and March and smallest number in July and August.

AGE.

In 1912, at all ages, death rate was 98.5 per 100,000 population.

In 1912, under one year, death rate was 1073.1 per 100,000 population.

Lowest death rate is found between 10 and 14 years of age, being 14.4 per 100,000 population. Death rate remained below normal at all ages, until the 55th year, when it increased to 101.0 per 100,000. At the 80th year, the death rate was 888.2 per 100,000 population of those living at that age.

CAUSE.

Pneumonia is a communicable disease, caused by a specific micro-organism, commonly the micrococcus pneumonia, which produces a potent poison, very dangerous to life, particularly during the periods of infancy and old age.

MODES OF COMMUNICATION.

The pneumococcus leave the body by the mouth and nose and enters the system through the same channels.

PREVENTION.

The Virulence of the Germ.—The virulence of the germ of pneumonia is subject to wide variations. In the bacteriological laboratory there are cultures, one-millionth of a cubic centimeter of which will induce death in animals, while there are other cultures twenty times the above given amount of which are necessary to produce the same effect. As a rule, the virulence is increased when the germ passes directly from one person or one animal to another. This is one of the reasons why the disinfection of the sputum of the person suffering from pneumonia is so desirable.

How the Sputa Should be Destroyed.—During the illness great care should be taken to prevent soiling bed clothing, carpets, or furniture with the sputa. The patient should cough into moistened cloth and the cloth should be burned before allowing it to become dry. It is not a sufficient precaution to exercise this care during the patient's brief illness, because the germs causing pneumonia are capable of living for a considerable time, in the mouth and nose of a person who has had the disease. Therefore, during convalescence, so long as any sputum is raised from the lungs, and for at least two or three weeks, all expectoration should be into a cup or cuspidor containing a disinfectant, the best disinfectant being a 5 per cent. solution of carbolic acid (six and three-fourth ounces of carbolic acid to one gallon of water). If not confined to the house, it is best that the convalescent, and that all persons who have a cough should carry small pieces of cloth (each just large enough to properly receive one sputum) and paraffined paper envelopes or wrappers in which the cloth, as soon as once used, may be put and securely enclosed, and, with the envelope, burned at the first opportunity. Remember that the sputum must not be allowed to become dry.

The Spitting Nuisance Dangerous to the Public Health.—It is now well known that the human saliva is the natural habitat of many species of microorganisms which gain access to the mouth in various ways, the most common being by breathing, through the mouth, air containing them. In a case of pneumonia, however, the germs of the disease are coughed up from the lungs. The sputum is, therefore, the common way by which pneumonia and some other dangerous communicable diseases are spread. After drying, the germs with which the sputum is charged mingle with the dust of rooms in homes, churches, schools, public halls, stores and

cars. In these places they are inhaled by human beings, with results dependent largely upon physical and meteorological conditions. The physical and meteorological conditions cannot always be avoided, therefore success in the restriction of those diseases must lie in the direction of the destruction of the germs which produce those diseases. It is probable that could the sputum always be destroyed as soon as ejected, pneumonia and a few other important diseases would soon disappear. We are confronted with the practical problem of how this may be done, either wholly or in a large degree. This problem is not an easy one to solve, for the reason that every man regards himself as independent and endowed with the inalienable right enjoyed by man throughout all ages, of depositing saliva wherever he chooses. Many municipalities are endeavoring to enforce regulations more or less stringent to prohibit spitting upon sidewalks and in other public places. These efforts are largely due to the knowledge now becoming so common that the germs of tuberculosis are spread by the air containing the germs of this disease which have been ejected in the sputum of the victims of the disease. When it becomes generally understood that sputum may contain not only germs of tuberculosis, but also the germs of pneumonia and of other dangerous communicable diseases, the efforts that are now being put forth to prohibit this public and dangerous nuisance should be largely increased.

Legal measures can be used only against the person spitting in public places. The person who contaminates the air of his home with his saliva is largely beyond the reach of such measures. Public opinion is necessary to sustain the enforcement of any law. It is especially necessary where it is sought to enforce a law depriving citizens of a privilege they have long enjoyed and can see no reason why they should not continue to possess. Education of the people concerning the importance of destroying or disinfecting all sputum must, therefore, precede forcible measures. This education should be such as to induce every intelligent person to destroy or disinfect the sputum or saliva he or she ejects, and to insist that the careless and the ignorant be compelled to do likewise. It is to be hoped that such education will result in the formation of public opinion so that it will demand that the law shall not only reach the public spitter, but that it will also apply to the person who contaminates his own home, thus not only endangering his own family, but also endangering the lives of all who may enter such a home. The press, the teachers in our public schools, the preachers in our pulpits, and all others who in any degree mould public opinion should urge this most important sanitary reform.

Isolation of the Patients.—It is believed that,

if care is taken with all the discharges from the nose and mouth, by disinfecting or burning, and if the clothing, bedding, drinking cups and other utensils which are used by the patient are treated in the same manner, the danger of communicating the disease will be reduced to a minimum and the necessity for terminal fumigation eliminated. Unfortunately, these precautions are not exercised in the majority of cases; hence the necessity for submitting the room and contents to disinfection, by means of formaldehyde gas, after the patient has recovered or died.

Isolation of the patient is always necessary; is required by this Board and forms one of the surest methods of preventing the spread of the disease. Contact infection, in nearly all the communicable diseases, is now recognized to be one of the most common elements in the spread of disease. Children, in particular, should not be permitted to enter the room where a patient is sick with pneumonia, and all others, except those in attendance upon the patient, should be warned against the danger of entering the room. *Isolation* and *quarantine* must not be confounded. The former confines the patient, and immediate attendants, to the sick room and does not prohibit the other members of the family from pursuing their ordinary duties, nor are children from a household where pneumonia exists excluded from attendance at school. Quarantine is not required in pneumonia cases: placarding of the house and isolation of patient are the requisites.

Ventilation of Buildings.—Through better systems of ventilation, much may be done for lessening the number of microorganisms inhaled with the dust of floors, carpets, etc., especially by having the foul air exits at the floor level, so that the general motion of the foul air shall be downward and not upward into the nostrils of the inmates of the room. This is especially important with reference to all public buildings, as, also, that they shall constantly have a liberal supply of fresh air.

Personal Precautions.—Any person dusting objects in a room, cleansing the floors, walls or ceiling of the living or sleeping room of a person suffering with pneumonia might well use a respirator. Several folds of gauze moistened and tied loosely over the nose and mouth might be used. The sweeping and dusting of a room which has recently been occupied by a person sick with pneumonia should be deferred until after the room and contents have been subjected to proper airing and disinfection.

No one should sleep in the same room with a patient, nor in a room which has been recently occupied by a person sick with pneumonia, unless the room (with all its contents) has been previously thoroughly aired or disinfected.

It is best not to stand near a person who is

coughing, because in coughing finely divided droplets of saliva are thrown from the mouth and may be carried for a distance of three feet. These droplets may contain large numbers of germs. They are also sometimes thrown out in forcible speaking. The ordinary breath does not contain them.

Much may be done to lessen the liability to contract pneumonia, by having the sanitary surroundings as nearly perfect as possible, and by keeping the lungs strong and healthy. These facts emphasize the importance of pure food, pure air, and healthful exercise.

Exposure to Cold Wind Should be Avoided.—Statistics of sickness and of deaths, collated with meteorological statistics, prove that the colder months of the year and those following are the months during which pneumonia prevails most extensively, and during which it sometimes assumes an epidemic form. At such times every person should avoid exposure to cold wind and to chill from a change from heavy to light clothing.

SANITARY CARE OF SICK PERSONS AND ROOMS.

The room in which one sick with this disease is to be placed should previously be cleared of all needless clothing, drapery, and other materials likely to harbor the germs of the disease; and, except after thorough disinfection, nothing already exposed to the contagium of the disease should be moved from the room. The sick room should have only such articles as are indispensable to the well-being of the patient, and should have no carpet, or only pieces which can afterwards be destroyed or disinfected. Provision should be made for the introduction of a liberal supply of fresh air and the continual change of the air in the room without sensible currents or drafts.

Handkerchiefs that need to be saved, should not be used by the patient; small pieces of rag should be substituted therefor, and after being used once should be immediately burned.

Soiled clothing, towels, bed-linen, etc., on removal from the patient, should not be carried about while dry; but should be placed in a pail or tub and covered with a 5 per cent. solution of carbolic acid (six and three-fourths ounces of carbolic acid to one gallon of water). Soiled clothing should, in all cases, be disinfected before sending away to a laundry, either by boiling for at least half an hour, or by soaking in the 5 per cent. solution of carbolic acid.

The discharges from the throat and mouth of the patient should be received into vessels containing an equal volume of a 5 per cent. solution of carbolic acid, and in cities where sewers are used, thrown into the water closet; elsewhere the same should be buried at least 100 feet distant from any well, and should not by any means be thrown into a running stream,

nor into a cesspool or privy, except after having been thoroughly disinfected. Discharges from the nose may be received on old cloths, which should be immediately burned. All vessels should be kept scrupulously clean and disinfected.

All cups, glasses, spoons, etc., used in the sick room, should at once, on removal from the room, be washed in the 5 per cent. solution of carbolic acid and afterwards in hot water, before being used by any other person.

MENDELISM AND ITS MEANING.*

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Heredity is an universal and fundamental biological principle determining the general resemblance of offspring to parent. Variation, natural elimination and heredity constitute the Trinity of Biogenesis, in other words, they are the underlying causal factors of evolution. So totally inclusive is the domination of heredity that when we attempt to analyze its *modus operandi* in any specific case our knowledge serves to lead us scarcely to the border of a great *terra incognita*. However, we need not wail the battle-cry of the agnostic! Sometime, and I believe soon, the pioneers of biological science will traverse this unknown world and formulate it in language so clear, so plain, that "he who runs may read." We can! We must know! Who of us dare set limitations to the capacities of the human mind?

Inheritance, on the other hand, is the phenomenon of the transmission of specific characters. Here, we are on safer ground, yet at once find ourselves in the vortex of profoundest biological research. The biologist no longer views the individual as a whole, as a blend, but on the contrary as an aggregate of distinct characters. These constitutional entities are designated "unit characters." What the atom is to the chemist, the molecule to the physicist, the unit character is to the biologist; and just as the atom and molecule are distinct, so we find no transitions between unit characters. They are specific and independent entities. These qualitative entities are however subject to quantitative variation but always within determinate limits. They are thus potentially immortal. Under the influence of unknown environic forces and at rare intervals certain unit characters may however become mutable and suffer mutational change thus producing new unit characters and contributing new materials to the process of evolution.

This conception of the organism as a complex of unit characters and individuality as the

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expression of a particular aggregation of such characters forms perhaps one of the most fundamental postulates in the realm of philosophical biology, as out of it has come our most recent theory of evolution and upon it firmly rests the laws of plant and animal breeding and the science of eugenics. Recognition of the far reaching significance that organisms are a consequence of genetic processes and that their powers and faculties are fixed in their physiological origin is recent even among biologists. The laity, with few exceptions, are shrouded in medieval superstition. "Historians debate the past of the human species, and statesman order its future as if the animal man, the unit of their calculations, with his vast diversity of powers, were a homogeneous material, which can be multiplied like shot." The sociologist with sincerity propounds solutions for the present and future ills of society and the field of education is perennially green with pedagogical theory and practice. Man may propose but natural law continues to dispose. The profession of medicine is not wholly free from censor in its practice and ethics. In its zealous effort to save life it has contributed is no small measure to racial decline. Let us not blind ourselves with our humanitarianism. A decreasing infant mortality and an increasing longevity is no index of racial advancement. "The reason for this neglect lies in ignorance and misunderstanding of the nature of variation; for not until the fact of congenital diversity is grasped, with all that it imports, does knowledge of the system of hereditary transmission stand out as a primary necessity in the construction of any theory of evolution, or any scheme of human polity."

Unit characters are the materials of inheritance and the students of heredity are striving to analyze organisms and segregate desirable unit characters to the end of synthesizing them in a next generation to the esthetic, economic and social welfare of mankind. Scientific breeding has thus become at will a process of analysis by which we may judge the number and nature of unit characters composing an individual or of synthesis by which we may create new individuals with the desired unit characters. These facts thus obtained furnish a series of biological reactions, revealing the constitution of living things. The constitution of an organism is the key to its behavior, its potentialities and its limitations, to what it may become and what it may produce. Such biological analysis, especially in the case of man, will be long and tedious. But when we view the imposing superstructure of chemistry reared in scarce a century upon the concept of the indestructible atom and note the far reaching application of Mendelism made in the last decade we feel confident that, though the time element will be longer, the result

to society will be a no less imposing science resting firmly upon this conception of organic constitution.

To the masterful mind and marvelous researches of the Austrian monk, Gregor Johann Mendel, (Figure 1) do we owe



Fig. 1. Gregor Johann Mendel about the year 1862 (1822-1884).

this modern conception of unit characters. His essay "Experiments in Plant Hybridization" which was presented in 1865 before the Natural History Society of Brünn marks a great biological epoch. Preceded by marvelous clarity in analysis of the problems involved and much preliminary experimentation he finally selected *Pisum sativum* and seven pairs of characters. (Fig. 2). After eight years of arduous labor

PAIRS OF UNIT CHARACTERS PISUM SATIVUM - MENDEL.

1. **ROUND** or angular seed
2. **YELLOW** or green cotyledons.
3. **GREY** or white seed coat.
4. **INFLATED** or wrinkled seed pods.
5. **GREEN** or yellow unripe pods.
6. **AXIAL** or terminal flowers.
7. **TALL** or dwarf stems.

Fig. 2. Pairs of unit characters used by Mendel in his epochal experiments in plant hybridization.

his results were presented in the above thesis, which for clarity, logical development and expository skill has scarce been equalled.

"The Origin of Species" six years previous (1859) had as if by magic captured the in-

terest and focused the activity of the biological world along lines which held promise of far greater productivity than the tedious labor of experimentation in plant and animal breeding. As a consequence Mendel's work sunk into oblivion. The one man, Nageli, who might have interpreted his results to the world failed entirely to appreciate their far reaching sig-

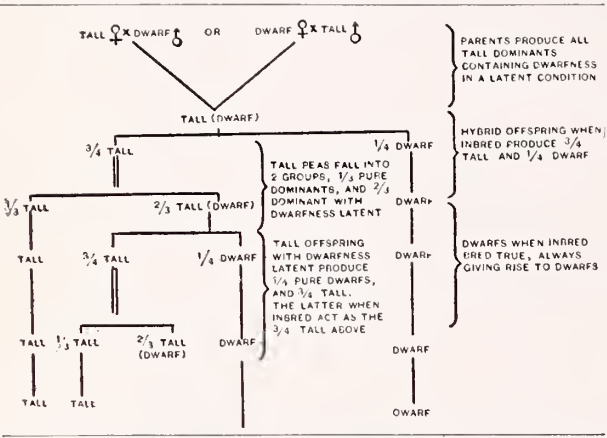


Fig. 3. Diagram showing the inheritance of tallness and dwarfness in peas according to Mendel's Law. (From Hegner after Thompson).

nificance. It was only after thirty-five years that the simultaneous rediscovery (1900) by De Vries, Correns and Tschermak of the same law that Mendel's work came to light and to its merited recognition.

I may now illustrate the Mendelian Law by the analysis of a specific case. If we cross a pure tall pea with a pure dwarf pea (Fig. 3) (and it matters not which way we make the cross) the offspring will all be tall. Now if we cross two individuals of this F¹ generation the F² generation yields a result unexpected for

were pure like the dwarf grandparent. If the 75 per cent. of tall peas in the F² generation are now inbred they resolve into two kinds of plants: one third are found to be pure tall like the other grandparent while the other two-thirds are found to yield in the F³ generation 75 per cent. tall and 25 per cent. dwarf; in other words they are hybrid like the F¹ generation. It is thus obvious that the F² generation is to be correctly symbolized by the ratio 1:2:1 in which 25 per cent. are pure tall like one grandparent, 25 per cent. pure dwarf like the other grand parent and 50 per cent. are hybrids. This is the famous Mendelian ratio.

This law can again be illustrated by crossing pure black and pure albino guinea pigs. (Fig. 4). The F¹ generation is black. Thus blackness is dominant and whiteness recessive. The F² generation resulting from inbred F¹ individuals consist of 75 per cent. black and 25 per cent. white guinea pigs. Inbreeding of the F² individuals shows the composition of this generation to be 25 per cent. pure black, 50 per cent. hybrid black and 25 per cent. pure white and so conforms to the Mendelian ratio of 1:2:1.

Case	One Parent	Other Parent	Offspring	Characteristics of Offspring
1	PP	PP	PP, PP	All with pigmented iris (brown-eyed)
2	PP	Pp	PP, Pp	All pigmented, but half simplex.
3	PP	pp	Pp, Pp	All pigmented and all simplex.
4	Pp	Pp	PP, Pp, Pp, PP	1/4 duplex pigmented; 1/2 simplex; 1/4 unpigmented (blue-eyed)
5	Pp	pp	Pp, PP	1/2 simplex; 1/2 unpigmented (blue-eyed)
6	pp	pp	pp, PP	All unpigmented (blue-eyed)

Fig. 5. Inheritance of brown and blue eyes in man. PP indicates homozygous brown eye; pp homozygous blue eye; Pp heterozygous brown eye. (After Davenport).

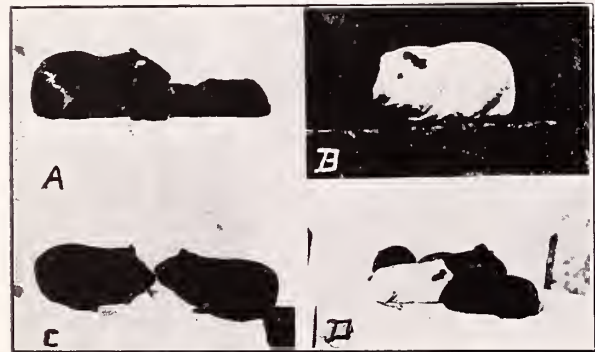


Fig. 4. (a) A pure black female guinea-pig and her young. (b) A pure albino male guinea-pig. (c) Two mature young of a pure black with a pure albino guinea-pig. (d) A group of four young produced by animals shown in (c). (After Castle).

it consists of both tall and dwarf offspring and in a ratio of 3:1. If the dwarfs of the F² generation are now inbred the result is dwarf offspring and so on generation after generation. In other words the dwarfs in the F² generation

One other example must suffice, though hundreds might be submitted, and I take this from Hursts' study of the heredity of eye-color in man (Fig. 5). Brown eye is dominant over blue eye so that if we cross a pure brown eyed individual with a pure blue eyed individual the children will all have brown eyes, but hybrid in nature. If individuals both with hybrid brown eyes marry then the children will exhibit eyes of three types: pure brown like one grandparent; hybrid brown like the parents and pure blue like the other grandparent and if a sufficient number of cases are collected they will be found to occur in the ratio of 1:2:1 as can be readily seen from a study of cases number three and four in figure five.

The above schematic table (Fig. 5) will also serve to make clear what is embraced in the terms "pure" and "impure." If the offspring receive two doses of the same unit character, one from each parent, as in cases one and six it is

said to be duplex or homozygous, i. e., pure as regards this specific character. If on the other hand, the offspring receives any unit character in a single dose, i. e. from only one parent; as in case three, the F¹ generation is said to be in respect to this particular character simplex or heterozygous (impure, hybrid). Consequently long lineage is in no sense an earnest of purity of breed. Since purity of breed as regards any unit character (the term is meaningless in any other application) is a question of gametic constitution one generation suffices as well as a hundred to bring this to pass, a fact unknown to the majority of breeders who still labor under the superstition that length of pedigree is a guarantee of purity. Obviously this misconception rests upon ignorance of unit characters and gametic segregation.

With these facts now before us we may proceed to the consideration of the hypothesis of their interpretation (Fig. 6). It is already established in the case of the guinea pig that blackness and whiteness are designated unit characters and that they are alternative to each other hence constitute an allelomorphie pair. It is also clear that in the F¹ generation that blackness masks whiteness whence the former is designated dominant and the latter recessive. The integrity of the recessive unit character is established by its extraction in pure form in the F² generation as it is clearly shown in the above scheme (Fig. 6). Parenthetically it may be stated that dominance though usually manifest, is in no respect an essential feature of Mendelism.

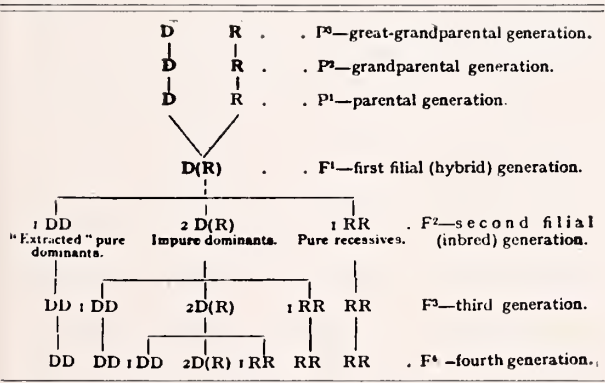


Fig. 6. Theoretical interpretation of Mendel's Law. (After Thompson).

To account for the behavior of these unit characters in inheritance Mendel postulated that each was represented in the gametes by some minute body which we now designate a determiner or genetic factor (Fig. 7). To explain the F¹ generation it is only necessary to assume the meeting of the genetic factors of blackness and whiteness in fertilization and the dominance of the former. The F² generation however presents a more intricate problem. To meet this Mendel assumed that the determinants

of the two members of an allelomorphie pair can never exist in the same gamete at the same time, that is, the gametes are always pure as regards the members of an allelomorphie pair. Each gamete will contain one or the other but never both. But the zygote in each case would contain both, so there must be at gametogenesis a segregation of the determinants resulting in pure gametes of each kind and produced in equal numbers in each sex. To state this in Mendelian phraseology: the male and female

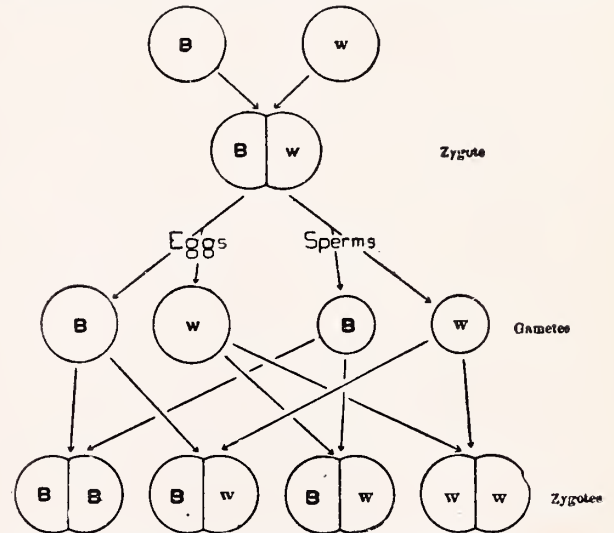


Fig. 7. Diagram to explain the results shown in Fig. 4. B represents the genetic factor blackness, W the genetic factor whiteness. (After Castle).

would each produce an equal number of gametes one half of which in each sex would bear the dominant determinant the other half the recessive determinant. This conception of gametic segregation is the fundamental fact of Mendelism. When one pauses to recall that nothing of cell cytology was known in 1865 the genius of this hypothesis seems scarcely short of divine inspiration. It is now obvious that in panmixis (fertilization) with random fusion of gametes in sufficient number that the ratio of 1:2:1 must follow in the F² generation according to the law of combinations.

While the triple rediscovery of the Mendelian ratio was announced in 1900 much cytological knowledge was at hand. The behavior of chromosomes in cell mitosis, spermatogenesis and fertilization were well understood and the Mendelian hypothesis was given the severe test of cytology with absolute substantiation at all points. The following series of slides will serve to make clear the cytological basis of Mendel's hypothesis.

May I first briefly recall to mind the process of mitosis as it occurs in the soma (Fig. 8). Within each nucleus is found a granular substance, *chromatin*, distributed over a net-work or reticulum. As each somatic cell approaches division these chromatin granules become arranged in a long thread or spirem. Shortly this

spirem undergoes a definite number of transverse divisions (specific with each species) producing a fixed number of *chromosomes* which

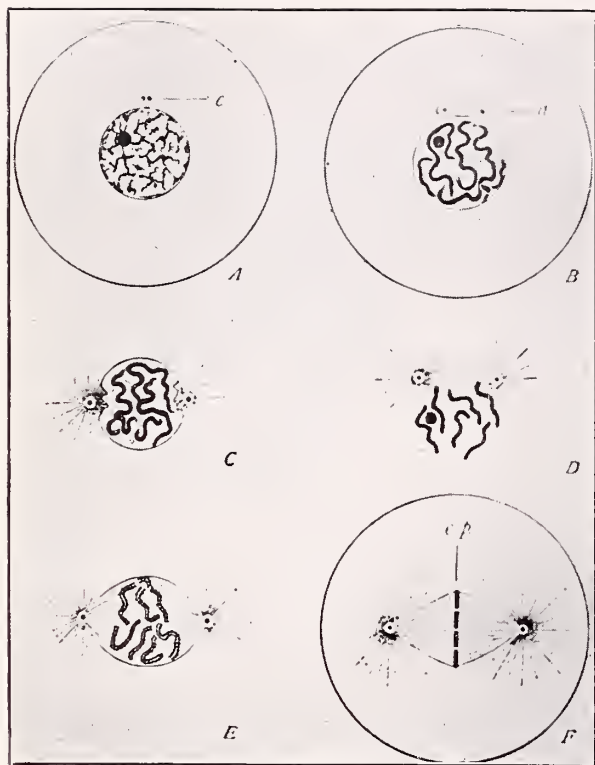


Fig. 8. Diagram showing early stages of mitosis in soma. A. Nucleus showing chromatin on reticulum. B. The spirem. C. Later stage of spirem. D. Chromosomes. E. Later stage of D. F. Chromosomes arranged at equatorial plate of spindle. (After Wilson).

become arranged in an equatorial plate on the spindle fibers and here suffer (Fig. 9) longitudinal equipartition. The spindle fibers shorten pulling these daughter chromosomes poleward where they join end to end breaking up into a granular reticulum in the daughter nuclei. It is evident that each of these must possess approximately one-half the nuclear substance of the mother nucleus.

The pertinent features of this process may be summarized: (1) The fixed specific number of chromosomes; (2) Mitosis characterizes all divisions from fertilized egg (zygote) to maturation divisions in gametogenesis; (3) Chromosomes constitute the physical basis of inheritance, i. e., they constitute the mechanism of transfer of the genetic factors; (4) Equivalent distribution of chromatin into the daughter nuclei in mitosis; (5) The spirem can be demonstrated to consist of two parallel threads, one paternal, the other maternal in origin which are separated by the longitudinal division of chromosomes at the equatorial plate in mitosis. This leads to the conception of the integrity of paternal and maternal chromosomes throughout somatic mitosis.

We may now consider gametogenesis as shown in *Ascaris* (Fig. 10). Early in any ontogeny

the germplasm is isolated from the somatoplasm constituting the primordial germ cells. By mitosis these multiply forming the gametogonia. Certain of these gametogonial cells undergo a period of growth forming the primary gametocytes. To this point all mitoses have been typical showing the somatic number of chromosomes which is four in *Ascaris*.

When the primary spermatocyte prepares for division the process is radically different. The four chromosomes become organized into two tetrads which come to lie in the equatorial plate. These now separate into two dyads which move to the poles. A wall comes in and we have the two secondary spermatocytes. These at once divide simultaneously in which process the two dyads in each separate into two monads and with the appearance of dividing walls four spermatids, each possessing two chromosomes, are formed. Each later produce a single spermatozoon carrying the reduced number (2) of chromosomes.

The process is essentially the same in oögenesis (Fig. 11) except that each primary oöcyte results in only a single functional egg. The other three potential eggs are eliminated as polar bodies in the two maturation divisions, sacrificed to the nutritional interest of the successful ovum.

Beside reduction of chromosomes these two maturation divisions accomplish another phenomenon, objective in our discussion. The primary gametocytes carry both genetic factors of an allelomorphic pair, one paternal, the other maternal in origin. The first division of gameto-

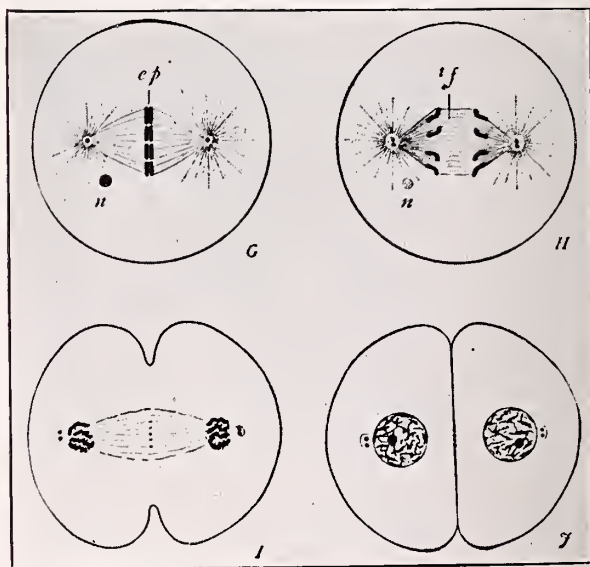


Fig. 9. Diagram showing late stages of mitosis in the soma. G. Longitudinal equipartition of chromosomes. H. Chromosomes traveling poleward. I. Chromosomes joining end to end. J. Chromatin in reticulum of the two daughter nuclei and formation of two daughter cells. (After Wilson).

genesis (primary gametocyte) accomplishes allelomorphic segregation, i. e., separation of the genetic factors of any pair so that only a single factor passes into each of the secondary gameto-

cytes. The subsequent simultaneous division of the two secondary gametocytes, in so far as the genetic factors are concerned is simply a distributional division. Thus half of the gametes in each sex carry the dominant and the other half the recessive genetic factor.

In fertilization the result depends directly upon which gametes fuse. Four possibilities in nature are evident as shown in scheme below (Fig. 12). $D \times D$ gives a homozygote (DD), $R \times R$ likewise a homozygote (RR) while $D \times R$ and $R \times D$ give a heterozygote (DR) which inbred in the F_2 generation in sufficient number will throw the Mendelian ratio ($1:2:1$). Thus the law of Mendel is seen to rest upon the cytology of gametogenesis, the essential feature of which is the allelomorphic segregation resulting in a purity of gametes.

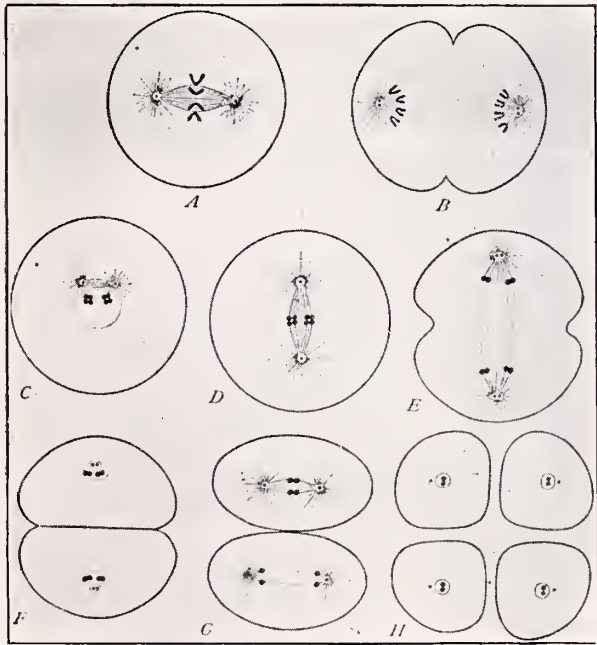


Fig. 10. Diagram showing essential facts of gametogenesis in male. The somatic number of chromosomes is represented as four. A. A spermagonial cell. B. Mitosis of same. C. Primary spermatocyte preparing for division; chromatin forms two tetrads. D and E. Division of C to form two secondary spermatocytes; this division also accomplishes segregation of the genetic factors of all allelomorphic pairs. G. H. Division of two secondary spermatocytes resulting in the reduced or germinal number of chromosomes. (After Wilson).

The facts of gametogenesis and fertilization which are pertinent to our thesis may be summarized as follows: (1) At gametogenesis two phenomena are accomplished (a) Reduction of chromosomes from somatic number ($2x$) to the germinal number (x), (b) Segregation of paternal and maternal chromosomes hence of the genetic factors which they carry.

(2) Each gamete carries but one determinant of an allelomorphic pair, i. e., gametes are pure as regards genetic factors.

(3) Gametes carrying either the dominant or recessive factor are produced in equal numbers in each sex.

(4) Fertilization restores the somatic ($2x$)

number of chromosomes, one half being paternal, the other half maternal in origin.

(5) The nature of the zygote swings with the character of the gametes fusing to produce

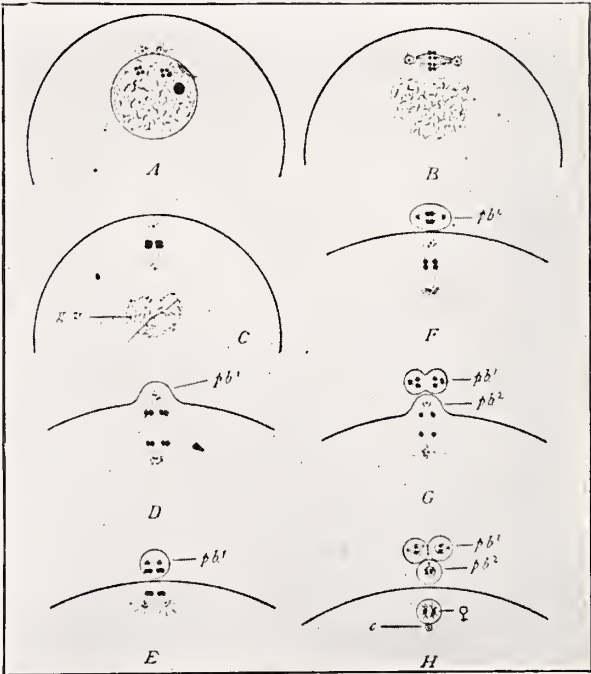


Fig. 11. Diagram showing essential factor of oögenesis. The somatic number of chromosomes is represented as four. A. Primary oöcyte preparing for division, the chromatin has formed two tetrads. B, C, D, E. Division of primary oöcyte to form the two secondary oöcytes, one of which is excluded as the first polar body. F, G. Division of secondary oöcyte and first polar body resulting in the expulsion from the egg of the second polar body. H. The single functional egg and three polar bodies with the reduced number (2) of chromosomes. (After Wilson).

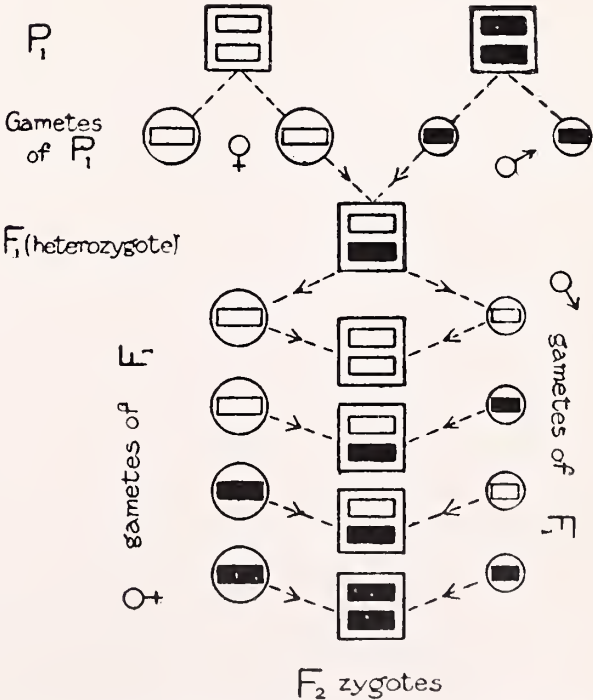


Fig. 12. Diagram illustrating segregation of genetic factors at gametogenesis in the F_1 generation and their possible combinations in the F_2 zygotes according to the law of combinations. Mendel's law rests upon this phenomenon of segregation of genetic factors at gametogenesis. (After Punnett).

it, resulting either in a homozygous dominant (D D), a homozygous recessive (R R) or a heterozygote (D R).

(6) Heterozygotes inbred will, according to the law of combinations, throw the Mendelian ration of 1:2:1.

The fundamental significance of gametic segregation in plant and animal breeding has, I trust, been made clear. We might suspect that in this respect man holds no unique position and accumulating evidence gratifyingly and completely substantiates our anticipations. If Mendelism means anything, it calls in no uncertain manner for application of its principles by those who are devoting their lives to social service, who desire not "promiscuously to swim down the turbid stream and make up the grand confusion," but rather to aid the soul of man on its lone way.

Just as a farmer by tillage makes a better seed bed, so education, hygiene and sanitation, have made better the conditions under which we live. Unquestionably, education has bettered if not entirely made our environment what it is. By better culture the farmer may make the dwarf pea slightly less dwarf but to hope to ever educate a dwarf pea into a tall pea is absolutely futile. The social worker must face these facts. Do our present efforts in this direction hold out any promise of permanent advance? Are we not trying to elevate the race by endeavoring to lift and perpetuate the unfit. Mendelism answers that our present efforts are but mere palliatives; that our feelings are

but temporizing with the facts; that we labor under a misconception of the nature of the organism. Eugenics offers the only avenue of permanent racial advancement. "Education is to man what manure is to the dwarf pea." The educated are in themselves the better for it. We are proud and rightly so of our institutions of learning, or reform, of detention and of moral uplift. Yet, the conspicuous efficiency with which these social agencies have functionated and should continue to function for human betterment should not bias our judgment. The fact remains that all these forces will not alter one iota the irrevocable nature of the succeeding generation. The progeny of dwarf peas will forever be dwarf peas. Permanent progress is a matter of ancestry not of education, of eugenics not of eugenics; it is a consequence of gametic nature and not of environmental influence. We must ever hold to the front that individuals have their origin in a physiological process. The outcome of this process hinges absolutely upon the gametic constitution. The zygote is an aggregate of unit characters which in the ontogenesis of that individual are absolutely removed from any possibility of qualitative variation through the operation of environic forces. Conception irrevocably and unalterably casts the die. Education and environment can only serve to induce quantitative manifestations of qualities and powers fixed at gametic fusion. Mendelism marks the dawning of a new and a rational sociology.

PROPAGANDA FOR REFORM.

Serobacterins.—While objection may be made to the sensitized living bacteria used by Besredka because there is always an uncertainty as to the action of living bacteria in the animal body, such danger cannot be attributed to the "serobacterins" because they contain dead bacteria, and so far as known, can do no more harm than other dead bacteria—in fact it is claimed that they are preferable to other vaccines because the toxic products of the bacteria, other than the immunizing properties, have been largely removed. It must be said, however, that these preparations are still in the experimental stage. In great part, careful clinical observations will decide vaccines (*Jour. A.M.A.*, Oct. 3, 1914, p. 1223).

Lactic Acid Ferments.—There is a large amount of literature to the effect that the *Bacillus bulgaricus* hinders putrefaction in the intestinal canal. While there may be some question as to a greater success in securing the implantation of this bacillus by administering it in "liquid cultures" the report of the Council on Pharmacy and Chemistry shows that such a culture is likely to reach the consumer in a more active state than one in the form of tablets (*Jour. A.M.A.*, Oct. 3, 1914, p. 1223).

Glycothymoline Refused Recognition.—A report of the Council on Pharmacy and Chemistry cites Gly-

cothymoline as a typical illustration of a "patent medicine" advertised to the public through the doctor. Different formulas have been ascribed to Glycothymoline by its promoters from time to time, but whatever the exact composition of this secret nostrum may be, it has been definitely shown that it is but a weak antiseptic solution. Nevertheless, the advertising circulars recommend the use of Glycothymoline in such serious conditions as diphtheria and ophthalmia of the newborn. Glycothymoline is in conflict with Rules 1 and 4 of the Council on Pharmacy and Chemistry, because of its indefinite composition and the method of advertising it to the public. It is in conflict with Rules 10, 6 and 8, in that it is an unscientific, shot-gun mixture sold under unwarranted therapeutic claims and under a misleading name (*Jour. A.M.A.*, Oct. 10, 1914, p. 1313).

Declared Misbranded.—The Federal authorities have secured convictions under the Food and Drugs Act against the following "patent" medicines: Nurito, West Baden Sprudel Water, Radam's Microbe Killer, Dr. Hilton's Specific No. 3, Dr. Sullivan's Sure Solvent, Russell's White Drops. With the exception of the first two the products were declared misbranded chiefly because false fraudulent therapeutic claims were made for them. Nurito was declared misbranded because false statements in regard to the ingredients were made and West Baden Sprudel Water because it was not a natural water as claimed (*Jour. A.M.A.*, Oct. 17, 1914, p. 1408 and 1409).

TRANSACTIONS

OF THE

Clinical Society of the University of Michigan

Stated Meeting, October 7, 1914

Ann Arbor, Mich.

HOWARD H. CUMMINGS, M.D., President

UDO J. WILE, Vice-President

REUBEN PETERSON, M.D., Secretary-Treasurer.

Reading of Papers

THE UNIVERSITY HEALTH SERVICE.

HOWARD H. CUMMINGS, M.D.

Head of the University of Michigan Health Service.

Educational advantages, we are frequently reminded, impose responsibilities which may not be ignored. Knowledge not only is power, but carries with it the obligation of expending power for the social good. The best claim that an education can make on the respect of the world is that it develops a sense for superiority in all of life's choices. Its practical pursuit is human well-being, and this objective comprehends all those agencies which make for human efficiency. Chief among these agencies is health. Health is a basic necessity from which issue all those powers and potentialities which make for fullness of life. Recognizing the close affinity between health and social progress and security, educators the world over are waging battle against disease and ignorance, so that human beings generally may attain to happiness and efficiency. This splendid achievement cannot be left for the physician, the health specialist, to accomplish single-handed. His duty it is to direct the work, to lead the way, but to the intelligent person everywhere must fall a share of responsibility in the preservation of physical health and the prevention of disease. Mad houses, prisons, asylums, crime, moral and physical degeneracy, all these are the fruits of disease, and many of them root deep in ignorance and neglect.

It is my purpose to-day to review the work being done here at the University by the Health Service and to offer a few suggestions which may be helpful to you in the service you may render your fellows.

A few years ago, when members of the Michigan Union were investigating the organized health work in the schools of our country, and last year, when our regents established a Univer-

sity Health Service, the end in view was to increase the efficiency of our students by conserving their health. Incidentally it was believed that this University would graduate many active workers for the eradication of disease.

The first year's work of the Health Service has been conducted in a brick dwelling house adjoining the campus. This building contains waiting and examining rooms, offices, a small operating room, and a fully equipped laboratory. The first floor is given over to men and the second floor to women. Here all University students may come for consultations, examinations, and treatments. Prescriptions are filled in the chemistry building, under the supervision of the dean of the department of pharmacy.

A health service staff is composed of four physicians, a pharmacist, a nurse and a clerk. Thus far during the first year 15,790 office calls have been recorded; over 300 house calls have been made, and 3,470 students have been treated. These figures might convey the idea that the majority of Michigan students are in poor physical condition. This is not true, for our records include calls for physical examinations, vaccinations against small pox and typhoid fever, and cases of students seeking advice relative to the prevention and spread of contagious diseases. Moreover, it has been the policy of this service to encourage early consultation even for slight derangements. In this way many serious illnesses are avoided and contagious diseases checked. The value of this policy was demonstrated when measles, mumps, whooping cough, scarlet fever and diphtheria appeared with no resulting epidemic. Some of the most serious cases of blood poisoning, met in the work, could undoubtedly have been prevented if early attention had been obtained.

Contagious diseases are unusually threatening in a university town. Students come from all parts of our country and from many foreign lands. If exposed in their homes just prior to entering college or at the end of vacation periods, the disease will manifest itself soon after

the students take up their college work. The history of students suffering with contagious diseases, traces the origin of disease, in many instances, to the home town. This fact, makes the government health bulletins, which show the prevalence and distribution of disease, a great help to us in our work. If Toledo, for instance, has an epidemic of small pox, all students from that city who report at the offices are watched with scientific suspicion. There can be no doubt that Ann Arbor has for many years taken a serious risk in failing to provide a suitable contagious hospital. Now, however, a modern institution is available, and this danger is greatly minimized. A wise provision recently made by our regents will allow students when ill and sent by Health Service physicians to the hospitals, to remain in these institutions for a period of sixty days, if necessary. The expense will be covered by the "blanket tax." This action will be effective in October, 1914, and will greatly lessen the danger in rooming houses, where room-mates, fellow students and kind hearted landladies, all unwittingly spread contagion.

Each winter during the last three years a severe form of sore throat has appeared among the students, resulting fatally in several instances. In 1910 an epidemic, similar in nature, was reported in England. The next year Boston suffered from this disease, and in 1912 Chicago and Baltimore were visited by the same malady. In the England and the Boston epidemics the source of the disease was traced to milk obtained from cows with diseased udders. It has never been possible to demonstrate that the Ann Arbor milk or water supplies contained the infective agent.

Observations made by the Health Service during the winter and spring months of 1914, support the belief that the disease is brought in by students, and spread by contact. At the height of this year's epidemic, a survey of most of the organized house clubs was made. The findings were surprising if not convincing. The report from twenty-nine fraternities showed ninety-one mild and thirteen severe cases of throat infection. In ten sororities eighteen mild and three severe infections occurred. In seven approved rooming houses twelve mild cases were found and in all the clubs thirteen mild and four severe cases occurred. It will be observed that 154, or three-fourths of the cases treated, came from the organized house clubs. This means that the intimate association found in these organizations, makes contact cases possible. Fortunately, these organizations have taken steps to correct conditions and to improve the sanitation in their homes by appointing health representatives who will co-operate with the Health Service. It is hoped that in this way the first cases of sore throat may be detect-

ed and isolated, thus preventing a recurrence of this epidemic.

It will be interesting to consider some of the physical conditions that form obstacles to education. These conditions can be observed in any class room. Many times during the past year teachers have recognized physical defects and have referred students to the Health Service. It is hardly necessary to have a medical training in order to detect some of the conditions to be discussed. Every teacher in scanning the faces in his class room makes a mental survey and classifies each one as bright, attentive, earnest, studious, or dull, inattentive, indifferent, indolent. But has it ever occurred to the teacher that the latter class might be handicapped by physical defects which could be remedied? It has been observed that hundreds of university students suffer from nasal obstruction, either partial or complete. We immediately think of adenoids and then remember that this is a condition occurring in childhood and occasionally in adult life. Adenoids are the least common cause of nasal obstruction in students. Deformities of the partition or septum of the nose, as spurs and deviations from the midline, cause most of the obstructions, while enlargements of the turbinate bones lying laterally, are commonly associated with such deformities.

So many of the ills of mankind have been attributed to nasal obstruction that the following aphorism has become a commonplace; "Shut your mouth and save your life." From the student's standpoint this might well be changed to "Shut your mouth and grow wise." Not a few young people deny the charge of mouth breathing, for in many it is a nocturnal habit. But the coated tongue, headaches, inability to concentrate, forgetfulness and finally the examination, prove their statements to be false. If all the freshmen students would be examined and would have the deformities found corrected, their University work would be of greater value to them and their teacher's energy would be conserved. It is impossible to estimate the good that would result if the removable barriers to mental processes were obliterated. The importance of this is recognized in our institutions for the feeble-minded, where most of the inmates are congenital defectives. It is one of the most frequent curative measures taken, and the results testify to the wisdom of the treatment.

Associated with nasal obstruction, and fully as important, are diseased tonsils. To neglect the warning of repeated attacks of tonsillitis, is to invite physical disaster. Eventually, such neglect will bring about permanent damage to the joints, the heart or the kidneys. So often does so-called rheumatism accompany diseased tonsils, that one can well believe that rheuma-

tism is a mask behind which several infections travel.

It will not be a waste of time to call to your attention another class of students. Often in this class are found the more ambitious and capable persons and they receive your sympathy, for you are apt to explain their condition as due to overwork. Every teacher has a memory of a thin, pale, emaciated, fatigued individual, apparently working against great odds. They are industrious and capable, but they tire easily. Many such students have a focus of infection in their bodies.

Tuberculosis of the lungs, or any other part of the body, diseased tonsils, middle ear infection, chronic disease of the air spaces of the head, appendicitis, and many other conditions could be enumerated as the cause of the debility described. The body is fighting disease, and the individual is using a diseased body in getting an education. It is important that teachers know and recognize this, for much good can be done if these students consult physicians, and the earlier they receive aid the better. This is an age of co-operation, and surely it is not asking too much of those who instruct youth to observe the general physical condition of those instructed.

So far as students' progress is concerned, teachers who are not alert for symptoms of disease may readily imagine themselves poor teachers if they are dealing with mouth breathing students; and if they are trying to teach pupils who are suffering from chronic infections, they might feel like slave drivers.

A third class must be considered. It requires abundance of tact and a generous contribution of patience for teachers or physicians to meet, instruct and benefit those falling into this class. I have in mind the "nervous student." In a broad sense this includes all students at one time or another, but in a restricted sense it means those unfortunates who have inherited a weak nervous system, and who under a moderate degree of mental pressure show abnormal manifestations. Because of this fact they are always to be found just before or during an examination period. In attempting to prepare for oral or written tests, they become confused; they find themselves unable to read, for even a short period, without fatiguing the eyes; the attention cannot be fixed. After several attempts they become depressed, grow introspective, develop insomnia, lose appetite, suffer from palpitation of the heart, and develop various sensory disturbances. The picture is a sad one and the condition from the student's point of view seems hopeless.

Much good, however, can be accomplished for these sufferers. The process is often slow and great perseverance is necessary to effect a cure. Parents should direct nervous offspring into

paths of even course, but it frequently becomes the duty of the teacher to advise a less strenuous line of work. Thus many unfortunate "college breakdowns" could be avoided. Once the disease is well established, it may require total abstinence from mental labor, or a complete change of environment and life work.

As an illustration of the good that can be derived from the treatment of a simple disease, let us consider a mild skin disease called acne. At the time of puberty the skin glands become unusually active; the sebaceous or oil glands often become occluded and so-called "pimples" of various sizes appear over the face, shoulders, chest and back. A few such lesions are overlooked but when a student's body is badly marked by this disease, a peculiar mental attitude develops. A person who was formerly cheerful and sociable may become moody and reticent. This change is brought about by several influences. The student usually has an exaggerated idea of the appearance of his skin, but remarks dropped by associates and others are poisonous to the acne patient's mind. Time and again students have come to my home to inquire if they were endangering themselves by sitting beside a fellow student with acne, or if it were safe to bathe at the gymnasium because they had observed certain men with eruptions on their bodies and feared a venereal disease. Is it surprising that those afflicted with acne shun the society of others? It has been a great pleasure to assure patients with this skin disease that they could be cured, and during this year over eighty such persons have taken treatment. Not uncommonly we see unkempt young men with acne after treatment escorting young ladies to ball games. This is an encouraging sign.

However true the statement may have been several years ago, I must take this opportunity to correct an idea that has pervaded our whole state, namely, that the University of Michigan is an unsafe place for young people because of the prevalence of venereal diseases. The University Health Service has encouraged these unfortunate students to report for care. Its policy has been to emphasize the criminality of conveying the disease to another rather than to dwell on the sin of contracting a venereal disease. You will immediately say that only a few would report to the Health Service for fear of exposure.

With the staff, "professional" secrets are held inviolate and fully one-half of the student cases treated in Ann Arbor have come under our care. As far as we have been able to ascertain, not over sixty cases have occurred this year among the students, and if any town or city in this or any other state, whose census includes five thousand young people, can show such a record, it may well be proud. This remarkable

change has not been brought about in a short time, or by any one agent. Instruction by wise parents and unselfish teachers has accomplished much. Locally, the attempt to free our city from immoral institutions is to be commended, but the enforcement of the state law prohibiting the sale of liquor to students has played a most important part in this reform. Most young people are safe when in possession of normal minds, but alcohol alters their perspective.

There are vast fields of labor before the University Health Service. Our first year has given us only an idea of the amount of illness to be eliminated. Next year our aim will be to prevent disease. It will take time and effort to teach personal hygiene to every student; to eradicate all contagious diseases; to instill into every mind, thoughtfulness for the other fellow; to show that clean living and efficiency go hand in hand; to recruit every Michigan student in health work and to make our slogan, "Every Michigan student sound; sound mentally and physically."

REPORT OF A CASE OF URETERO-CYSTOSTOMY.

REUBEN PETERSON, M.D.

(From the Department of Obstetrics and Gynecology, University Hospital Ann Arbor, Michigan).

I desire to place upon record a rather unusual case. The patient, a married woman of 32 entered the University Hospital June 18, 1914. She was suffering from chronic inflammatory disease of both appendages, the right tube being especially large, the size of the fist, and the entire pelvic contents being bound together by inflammatory adhesions. June 25 both tubes and ovaries together with the uterus were carefully dissected and removed. Since the disease was of long standing the cervix was removed with the uterus to prevent the continuation of the gonorrheal cervical discharge which is apt to persist where a supravaginal hysterectomy is performed. Catgut was used for ligating the arteries and the amputated vagina was closed with the same material except for a small wick of gauze leading downward from the subperitoneal space.

The after history of the case was uneventful with the exception that shortly after the operation, ten days to be exact, she began to pass urine from the vagina as well as from the urethra. It was suspected that the patient had a uretero-vaginal fistula but she was discharged without further operation with the hope the fistula might close spontaneously, as not infrequently happens.

However, spontaneous closure did not take place and the patient re-entered the Hospital in September for relief of her distressing condition. Although she passed some of the urine by the urethra there was a continual flow of urine from a small opening in the left vaginal fornix. That the fistula was uretero-vaginal was proved by the fact that a methylene blue solution introduced into the bladder did not pass out of the vaginal opening but remained in the bladder until withdrawn by a catheter.

On September 18, 1914 a retroperitoneal transplantation of the left ureter into the bladder was performed. An incision was made in the abdominal wall, four inches in length and to the left of the former abdominal incision. The parietal perineum was not cut through but separated from the left pubic wall, down to the bottom of the pelvis. So great were the adhesions, however, that it was impossible to isolate the ureter until the peritoneum had been opened in the median line. Then with one hand within and the other outside the peritoneum, the left ureter was located and dissected out of its bed for two inches and a half before it entered the vagina. Great care was taken not to injure the blood supply of the ureter which was considerably thickened and slightly dilated. Its end was cut away from the vaginal wall and prepared for insertion into the bladder by splitting it upward for a third of an inch. Into each side of this split ureter was passed a number one catgut suture. A small incision was made in the base of and left side of the bladder upon a curved hemostat passed by the assistant to the posterior wall of the bladder through the urethra. The split edges of the ureter were fastened within the bladder by passing long straight needles through the bladder wall at some distance from the bladder incision and tying the catgut threads outside of the bladder wall. Before these were drawn tight and tied a silk ligature was passed through the end of the ureter and drawn down by the hemostat in the bladder, so as to insure that the end of the ureter was completely in the bladder and to steady the ureter while the latter was secured to the bladder incision. Fine silk ligatures were used for this purpose and the mucosal and muscular coats of the bladder attached to the ureter so that the bladder opening was closed securely around the ureter but not so snugly as to cause constriction of the latter.

A small gauze drain was led out through the vaginal opening and the reflected peritoneum sutured as closely as possible to the side of the pelvis, the operation being completed by closing the abdominal incision in the usual manner.

The gauze drain was removed in twenty-four hours. The patient was kept in the Fowler

position for a week and the bladder kept emptied by catheter or micturition for the first four or five days. Not a drop of urine has leaked through the vagina and the patient has made an uninterrupted recovery.

Fortunately such operations as I have just described are not particularly common, since the ureter is not very often the seat of a fistula. Whether I accidentally tied off the left ureter in ligating the left uterine artery or whether the fistula was the result of a sloughing arising from interference with the blood supply of the ureter one cannot say. The adhesions were so great at the vaginal opening of the ureter that it was impossible to make out the relations of the ureter with the bladder.

The kind of operation selected for ureteral fistula depends upon the seat of the ureteral lesion. If low down, as in this case, it is usually possible to free the lower end of the ureter and insert it in the bladder. If high up this may be impossible. Then the two ends of the ureter must either be anastomosed or else the kidney on that side must be removed.

One must remember that an ureteral fistula may be obstructing the passage of the urine lead to hydroureter and hydronephrosis and possibly infection of the kidney. Where this has occurred, if the kidney be healthy, nephrectomy may be safer than transplantation into the bladder.

Obviously the most delicate part of the operation just described is the securing of the ureter to the sides of the incised bladder. Too loose coaptation will mean leakage of urine from the bladder into the retroperitoneal space. If the sutures be passed so snugly that the ureter be compressed, dilation of the ureter and hydronephrosis may result.

Whenever possible the transplantation should be retroperitoneal since if leakage does occur the peritoneal cavity will escape infection.

DISCUSSION.

DR. W. D. SEELEY: I don't know that there is much to add to the paper. I had the after care of this patient and her convalescence has been entirely uneventful. The patient was of course put in the Fowler position for about three days and was catheterized every three hours. So far as I have been able to tell, there has been no leakage and no cystitis. Howard Kelly of Baltimore describes very minutely an interesting operation for transplantation by the vaginal route. This, however, is a very delicate procedure and so far as I have been able to tell by the description, would not have had a practical application to the case under discussion.

GRANULOMA FUNGOIDES—REPORT OF AN UNUSUAL CASE.

JOHN H. STOKES, M.D.

(From the Department of Dermatology and Syphilology, University Hospital, Ann Arbor, Michigan).

I have the pleasure of presenting before you this evening a rare form of a rare and much discussed dermatosis. Following the custom of our clinic, I shall give you an objective description of the patient's condition before considering her history.

Mrs. N. is a woman in later middle life, in good general health. She has been able to perform household duties to within a short time before her entry in the Hospital. The lesions of which she complains are confined at the present time entirely to the right foot. The essential gross pathologic feature is a tumor mass in the skin itself. The neoplasms vary in size from that of a split pea to perhaps half a hen's egg, are hemispherical in contour, of a reddish purple color, a rather soft, almost cystic feel and occasionally present slight scaling. The skin from the sole of the foot to a short distance above the ankle is dusky, moderately hyperpigmented, thickened and boggy although there is no frank oozing. There is a certain tendency to confluence among adjacent tumors, and a further tendency on the part of the larger masses to break down, forming indolent ulcers with irregular borders and unclean granulating bases. Especially notable in connection with this tendency to ulceration is an equally marked predisposition to spontaneous healing, easily apparent along the margins of this large ulcer on the dorsum of the foot. Within the few days that this patient has been in the Hospital this lesion has already undergone a striking spontaneous involution, without treatment. Another type of lesion to which I wish to direct your attention is that best seen upon the sole of the foot—a circular infiltrated erythematous plaque elevated little if at all above the surrounding skin in the earlier stages. These chilblain-like lesions progress and regress and can be seen in all stages of their evolution within a small area. They are the precursors of tumors such as I have just described, the earliest form of infiltration. On the dorsum of the foot and on the heel their transition into nodules can be studied. The rapidity with which they may appear in what is to all appearances normal tissue, is evidenced by the fact that three days ago the border of this large ulcer showed an uninfiltrated, normally-developing scar. Since that time half a dozen of these circular, deep pink infiltrates have come into existence within a few millimeters of the ulcer margin. Several of the larger non-ulcerated masses have diminished as much as a third in size since the patient

was first seen, while others have remained stationary. Notice if you will the sessile growths on the dorsal surfaces of the toes, which are homologous with the tumors on the dorsum of the foot and the leg. Apart from the fact that a restricted area is affected there is no distinctive grouping of the lesions and the ulcers have no well-defined configuration.

The general examination of this patient reveals several features of decided interest. There is a notable absence of lesions of the type described elsewhere on the body. Over the right elbow is a group of scars, atrophic and superficial with slight hyperpigmentation. There is an exostosis on the left clavicle. On the right *labium minus* is a perfectly circular slightly depressed scar-like area six millimeters in diameter. The left pupil is oval and reacts very little to light. A marked leukoplakia is present at the angle of the mouth on the left side, and there is considerable superficial scarring of the soft palate. The Wassermann reaction is positive.

The history of the patient is essentially as follows: Fifteen years ago as a result of extramarital exposure she developed a small hard painless sore on the site of the scar on the labium, above described. About a year after she had a very sore mouth and throat, refractory to local treatment, and lasting several months. Before this condition had cleared up the left eye was affected, the symptoms suggesting those of an iritis. Incidentally, traces of this iritis were found in her examination by the Ophthalmologic service. Six years ago a pea-sized nodule appeared beneath the skin of the right foot. The skin scaled a little, and a gradually extending erythema appeared. Infiltrated areas appeared from time to time and disappeared leaving no traces. Four years ago several small nodules appeared above the right elbow. These became red, scaled and disappeared within a week, leaving scars. The patient says they did not ulcerate. At intervals up to the present time lesions have appeared upon the foot but have regressed without scar formation. Six weeks ago the onset of the present attack was noted, in the form of a group of nodules, which increased rapidly in size, were painless and in some cases underwent central ulceration with spontaneous healing. The patient has also noticed variations in the size of the larger nodules from time to time. The chilblain-like areas have become tender of late. New lesions appear as the older ones involute.

With so entirely satisfactory a history of lues, combined with conclusive objective findings, the foot condition should be luetic. I could not present you with a better example of the value of the purely objective diagnosis in dermatology than this case affords. Whatever condition we

may be dealing with in the region under discussion, it is not luetic.

Summarizing then, the patient presents in addition to a history and examination which establishes the fact that she is syphilitic, a pathologic process at present affecting the right foot, chronic in character, consisting of infiltrations and tumor masses which appear and disappear, present no definite configuration or distribution suggestive of lues, show a spontaneous tendency to ulceration and an equally marked tendency to spontaneous healing. All the characteristic lesions exhibit in varying degrees this evanescent character. From the anamnesis we gather that there were at one time similar lesions on the right elbow and that all the lesions of the present type have had prodromal manifestations in the form of erythematous patches and in-



Granuloma Fungoides

filtrations not marked enough to be called tumors which have also been of an evanescent type. The subjective symptoms have been negligible and the general health unimpaired.

In discussing the differential diagnosis, lues scarcely occurs to the observer. So large a number of gummatous lesions in so circumscribed an area would be extraordinary. The total absence of arciform configuration, the irregular jagged ulceration without gummatous sloughing, the superficial scars or their entire absence in so chronic and extensive an involvement, would be more extraordinary still. These considerations are quite sufficient to rule out the objective diagnosis of a nodulo-ulcerative syphilide. There are no late luetic lesions of the type represented by the chilblain-like plaques in the sole of the foot. The fugitive character of the lesions, again, is out of keeping with a lues.

Sporotrichosis is a possibility readily eliminated. Although gumma-like masses may form

in a sporotrichosis, frank open ulceration is not the rule, the tendency being much more to deeper-seated involvement and the formation of sinuses. The first of the real possibilities is sarcoma cutis, which not infrequently occurs at such a site as this, is very slow in its development as compared with other sarcomata, and also metastasizes less rapidly. The nodules in this case are certainly very suggestive of those of the *Hautsarcom*. But the tendency to healing and spontaneous retrogression to which I have repeatedly called your attention is at variance with the behavior of the typical malignant neoplasm. None the less this possibility deserves due consideration.

The limitation of this condition to the foot and the dusky purplish discoloration of the skin suggest another malignant condition, relatively little seen in this country, the multiple idiopathic hemorrhagic sarcoma of Kaposi. This disease is almost racial in its distribution, however, being limited practically to Galician Russian Jews, and seldom presenting such extensive tumor formation as that noted in this case.

The final possibility is that of mucosis fungoides, a relatively rare dermatosis of unknown etiology. There may be present with us tonight some who recall the case reported by Dr. Breakey some years ago, remarkable for the extreme disfigurement and mutilation which took place before the fatal termination. In typical cases a well-marked division into stages in a chronic course occurs. The earliest manifestations usually take the form of peculiar erythemas, more or less extensive, with slight scaling and in many cases, the most intense and excruciating pruritus. These erythemas disappear and reappear, assume eczematoid characteristics and varying degrees of generalization. They are succeeded by lichenoid eruptions on an erythematous and edematous base, with the element of infiltration increasingly prominent. Pruritus is the principal subjective manifestation. The general health is not directly affected at first, but later exhaustion and emaciation set in and the patient may die before the last stage of the eruptive phenomena is reached. In contradistinction to the last or mycotic stage, these prodromata are spoken of as premycotic. The last stage of the disease is characterized by the formation of tumor masses of the type described in this patient. The fugitive, evanescent character persists, the tumors coming and going, ulcerating and healing with more or less extensive mutilation, until exhaustion, diarrhea and progressive emaciation terminate in death. As a rule mycosis fungoides is generalized, with extensive involvement of the skin of all parts of the body. Its limitation to a single region as in this case is exceedingly rare. When it occurs the premycotic stages are not well marked and

the appearance of tumors may be the first manifestation—the “*forme a tumeurs d'emblee*” of Vidal and Brocq. It is to this type that the present case in the main conforms.

Of the etiology as I have intimated, practically nothing is known. The resemblance of the pathologic picture to sarcoma cutis has led some observers to classify mycosis fungoides among the malignant connective tissue neoplasms. Metastases apparently occur in the liver and spleen. The view is now generally conceded to be mistaken, however, and the tendency is to regard the condition as allied to the lymphodermias, since the collections of cells in the cutis which are characteristic of the histopathologic picture are now believed to be lymphocytes. Large numbers of a peculiar form of mast cell are also found. The conception of the association of the condition with lymphoid hyperplasia has been strengthened by the associated occurrence of lymphocytosis in the blood, even simulating that of a leukemia, and the presence of a general adenopathy and enlarged spleen in a considerable proportion of the cases. There was no notable adenopathy in this case, and no splenic enlargement. The differential count was as follows:

Small lymphocytes 4 per cent.

Large lymphocytes 14 per cent.

Transitionals 2 per cent.

Neutral polynuclears 80 per cent.

Red cells 5,328,000; white cells 10,900;
Hemoglobin (Talquist) 80 per cent.

Biopsy was taken by Dr. Senear, who is undertaking a special study of the histopathology of these lesions. It is only necessary to state here that the microscopic findings fully confirm the diagnosis in this case.

Mycosis fungoides is an invariably fatal disease, the patient seldom living more than two to four years after the onset of the mycotic stage without treatment. The only treatment which has been of any considerable avail is the Roentgen ray, which often keeps the local manifestations in abeyance for long periods of time. Arsenic has been used internally, but on the whole is of little value compared with the first-mentioned treatment. This patient has had an X-Ray exposure only very recently and it is still too early to see the effect.*

DISCUSSION.

DR. UDO J. WILE: There is very little to be added to what Dr. Stokes has said. The first thing that suggests itself, however, is the fact that mycosis fungoides is a very bad name, that is, suggests some

*As this report goes to press a new group of typical nodules has appeared in apparently sound and previously unaffected skin about two inches below the patella on the right leg. At the time this case was presented and discussed the histopathologic examination had not been completed. These findings entirely eliminated sarcoma cutis from the differential diagnosis.

organism as the etiologic factor. As a matter of fact, there is no germ origin responsible for this condition, and a very much better name is that of granuloma fungoides. I have seen very few of these cases,—six all told. They are extremely rare. This one is exceptionally rare, being so distinctly localized. Usually the patients are fairly well covered with these lesions, and in the case which Dr. Stokes has mentioned, the patient was covered from head to foot with a mass of tumors which by confluence absolutely obliterated the features of the individual. In the last stage he was unrecognizable. A most interesting feature of the disease has been noted by Paltauf who found in a number of cases of this disease an associated blood picture of lymphatic leukemia and who, because of this, regards mycosis fungoides as belonging to the leukemic group of diseases. It is more than likely that granuloma fungoides can be associated with the blood picture of leukemia, rather than that it is a manifestation of real leukemia. In this case, as Dr. Stokes suggested, we are not entirely satisfied as to the differential diagnosis, but we believe it to be a case of granuloma fungoides. I am quite certain, however, that we shall be able to make a differential diagnosis which will establish the diagnosis.

DR. C. B. G. DE NANCREDE: We really do not know very much about sarcoma, but certainly surgical intervention after the length of time the history indicates the disease has existed in this patient in undoubted sarcoma of bone of the muscles or the intramuscular septa would be of little avail because of almost certain metastases. I believe if you could demonstrate the absence of complication, in true sarcoma an early operation might be curative, but this disease does not behave like genuine sarcoma.

A CASE OF DERMATITIS EXFOLIATIVA

FRANCIS E. SENEAR, M.D.

(From the Department of Dermatology and Syphilology, University Hospital, Ann Arbor, Michigan).

I have the pleasure of presenting this evening a very striking and relatively infrequent dermatologic condition. Let us first consider the findings on examination, and follow with the history of the case.

The patient is a poorly nourished man of medium size, the skin of the entire body being of a bright beefy red color, brawny, thickened, infiltrated, and at the flexures thrown into folds corresponding to the lines of cleavage of the skin. Upon this brilliantly erythematous base is superimposed a marked desquamative process, yellowish scales being apparent in profusion over all parts. The skin as a whole is remarkably dry, and I will ask you to notice the absence of any oozing or crusting, this point being of importance in the diagnosis of the condition. The palms and soles exhibit signs of marked

desquamation, and the nails of both hands and feet are thickened and thrown into folds, and on several of the fingers have already been shed. Over the malar eminences are to be found the only parts of the skin which have been spared. The oral mucous membranes, with the exception of slight leukoplakial scarring, are normal. The conjunctivae, however, show some injections, and there is a slight purulent discharge at the inner canthus, as well as some marginal blepharitis. There is a very marked general adenopathy, some of the glands being as large as a walnut.

This patient entered the University Hospital about three weeks ago, and his condition at that time was practically the same as at present, although the redness of the skin was much more intense. The family history of the patient shows nothing of interest. His personal history, however, discloses the fact that he has been a heavy whiskey drinker for a number of years. Furthermore, he has suffered for fifteen years from a chronic eruption, the nature of which is unknown, the patient's description suggesting an eczema, and indeed it was so diagnosed by several physicians.

The present trouble began about fourteen weeks ago. Shortly before this time the patient had visited a physician who evidently believed him to be syphilitic, and he was given an injection of the salicylate of mercury in the buttock. Two days after the injection a number of red patches, varying in size from that of a quarter to that of the palm of the hand, appeared on different parts of the body. These rapidly increased in size and coalesced, until in two days time the whole body was covered. Scaling began almost immediately. The first scales were quite large, some of them being six inches square, and perfect casts of portions of the palms and soles were exfoliated. After these large scales had been shed, a fine branny scaliness of the type seen at present began, and has continued undiminished until the present time. The extent of the scaliness is evidenced by the fact that we were able to gather a half cupful of scales from the floor after the patient had been examined on entry. There has been practically no pruritus with the condition, only some slight itching about the hands and wrists.

The onset of the eruptive feature of the condition was accompanied with marked constitutional symptoms. Following the appearance of the eruption the patient suffered with chills and fever, and complained of weakness and malaise. He began to lose weight, and at the time of entrance to the Hospital had lost fifteen pounds. As is common in this condition, he has felt chilly whenever he has not been well protected from the air. During his residence in the Hospital the patient has regained a small part

of his lost weight, has suffered no chills and has had but an occasional slight rise in temperature.

This case presents but a few possibilities when we come to consider the differential diagnosis, there being but three conditions in which we find a generalized reddening of the skin with pityriasis, universal eczema, universal psoriasis, or one of the forms of exfoliative dermatitis. Eczema can be easily ruled out, for it would be impossible to have so generalized an eczema without being able to find in some parts the characteristic features of this condition—oozing, fissuring, crusting, etc., or the subjective symptoms of itching, burning and the like. In psoriasis the condition is rarely truly universal, the scaling is more abundant and in some areas would be of the characteristic silvery type, showing a capillary hemorrhage on scraping. Furthermore, typical papular lesions would be found at the borders of some of the areas.

This leaves by a process of exclusion one of the forms of dermatitis exfoliativa, and all the findings and facts in the case confirm this diagnosis.

Under the head of exfoliative dermatitis we find grouped a number of different conditions which are variously classified by different authors. In order to avoid confusion, we will follow the grouping adopted by the English, one which includes scarlatiniform erythema as the first member of the three main types, the other two being the dermatitis exfoliativa of Wilson, and pityriasis rubra of Hebra. Among other conditions which are placed in this group, are dermatitis exfoliativa neonatorum (Ritter's disease), epidemic exfoliative dermatitis, and the exfoliative dermatitis associated with leukemia or lymphadenoma, but as these conditions are probably of a different nature, they are merely mentioned here.

One of the main points of difference between the three first named groups is the time element, but that there are other and equally important variations, the following brief discussion will serve to demonstrate:

In the recurrent desquamative scarlatiniform erythema we are dealing with a condition whose etiology is unknown, but is probably due to toxemias of various origin. The ingestion of certain drugs, notably mercury, quinine, belladonna and opium, has produced a similar if not identical state, and the condition has been said to occur in connection with gonorrhea, albuminuria, pyogenic infections, and the ingestion of certain foods. Following a period of several days during which there are marked constitutional symptoms, nausea, headache, shivering and more or less fever, a universal bright scarlet punctate or macular eruption ap-

pears, beginning as red itching patches which quickly become generalized. Desquamation begins within a few days, and the epidermis may be shed from the hands and feet en masse. Following this type of desquamation, branny desquamation may follow for a week or more. Relapses are common, so the condition may persist from one to several weeks, being relatively acute. The prognosis for recovery from any single attack is good, but as the name suggests, one must always bear in mind the possibility of future attacks.

In dermatitis exfoliativa of the type described by Sir Erasmus Wilson, there is also no definite etiologic factor known, but profound mental disturbance, exposure to cold and wet, and the ingestion of certain drugs, notably mercury, have been suggested as possible causes of the so-called primary type, and it has been noted that alcoholic or rheumatic patients apparently are predisposed to the condition. In the secondary cases, the exfoliative dermatitis develops in a patient who for years has suffered from some chronic skin condition, as psoriasis or eczema. The disease begins with the appearance of several erythematous itching patches which rapidly increase in size and coalesce, until in the course of two or three days the entire body is covered. The desquamation begins after the redness has been present for several days, the skin remaining dry with no suggestion of crust formation or exudation. The scales are very abundant, and are thin and of varying size, sometimes being large and paper like. The desquamation continues from one to several weeks, the hair and nails often being partly or completely shed, a rare occurrence in the first described condition. The constitutional symptoms are less marked in this subacute type than in the scarlatiniform type, although there may be some symptoms at the onset and fever may persist throughout the course of the condition. The prognosis is most uncertain, as recovery may take place in from several months to years, or the patient may die from exhaustion or some intercurrent infection. In case of recovery from the attack, however, the patient is apt to suffer from recurrence of the condition.

Pityriasis rubra of Hebra, which is a very chronic and invariably fatal condition, begins with the appearance of bright red patches in various regions, especially at the flexures of the large joints. Becoming covered with fine scales, the patches gradually extend, until in months or years, the whole body is of a red color. In both the Wilson type and in this condition the skin undergoes atrophy, but it is more marked in pityriasis rubra, the skin here becoming so retracted that movements may be restricted and ulceration occur over points of pressure. The general health is affected sooner or later, the

strength fails, and the patient dies. The etiology of this condition is even less thoroughly understood than that of the other types but it has been suggested that the occurrence of tuberculosis in many of the cases may be of significance.

The case presented for your observation this evening is one of the second named type, dermatitis exfoliativa of Wilson, as the history and findings have no doubt shown you. The patient presents an interesting set of possible etiologic factors, each of which has been mentioned in discussing the condition. He has suffered from what was apparently an eczematoid process for a number of years, is avowedly a heavy whiskey drinker, and had received injections of mercury.

I feel that the patient is on the road to recovery from this attack, and you will perhaps be interested in the therapeutic measures employed. There is no specific therapy for this condition, the main effort being directed toward keeping the patient in good general health and as comfortable as possible. To meet the former requirement we are first forcing food. He receives daily three full meals with a light lunch twice daily, and he is given special milk and frequent hot drinks in addition. Furthermore, pilocarpine sweats are being given to combat the tendency of atrophy of the sweat glands, and strychnine in tonic doses is used as a further supportive measure. Quinine is being employed in large doses, as this drug, as well as arsenic and the salicylates are empirically used in cases of this type. The only external medication has been the use of eucerine, this ointment serving to keep the skin soft and pliable and that is all that is necessary in non-pruritic cases. If itching were present, however, it would be necessary to incorporate some anti-pruritic agent in the ointment.

In closing I may say that as a result of the tendency which this man has shown to improvement, I consider the prognosis fairly favorable for this attack. In case this favorable outcome should ensue, with a careful avoidance of the apparent etiologic factors in this particular instance, it is possible that the patient may go through life without other attacks, but, of course, such a favorable prognosis can only be hoped for.

DISCUSSION.

DR. UDO J. WILE: This is the third case that we have seen of dermatitis exfoliativa in the last two years. Each has illustrated a very important lesson,—the necessity of correctly diagnosing a dermatosis. In the first case, one of psoriasis becoming generalized, the patient succumbed. The second was one exactly like the one before you tonight. The patient had had psoriasis for many years and had received arsenic in large quantities with a sudden outbreak of a generalization of his condition as in

this case. In that case, I gave a dubious prognosis. The patient, however, cleared up in from six to eight weeks, entirely, to return in a year with a much milder recurrence which also cleared up.

The danger to life in these cases is apparent. The loss of function of a large area of skin surface throws a tremendous strain on the renal system. These patients, as a rule, develop nephritis if the condition remains for any great length of time, and usually succumb from the effects of nephritis. The patient before you had either eczema or psoriasis, either of which has become generalized perhaps as the result of the irritation of mercury. No blame attaches, however, to his physician, since the patient gave a history of syphilis, and it was impossible to foresee any idiosyncrasy to mercury. The improvement is rather slow up to a certain period. When the patients begin to get well, however, they usually improve rapidly. In this particular case before us, the prognosis looks very dubious to me. The patient has been in a number of weeks and I am not convinced that he has made any very marked improvement.

REPORT OF A CASE OF TYPHOID OSTEOMYELITIS.

Q. O. GILBERT, M.D.

(From the Department of Internal Medicine. University Hospital, Ann Arbor, Michigan).

This case is reported first because of the relative infrequency and second because of points of diagnostic interest. The patient who is a photographer entered the Medical Clinic complaining of severe pain in his right leg and hip, fever, sweats and chills. Family history is negative. The previous medical history of the patient is unimportant until two and one-half years ago when he had a fever lasting several weeks, which was diagnosed as typhoid. The history of his illness was rather indefinite, partly because the diagnosis and treatment were under the supervision of an osteopath. At this time the patient was in bed three and one-half weeks. At the later part of this illness he sustained some injury to his leg and hip. He thinks the hip was dislocated. The skin of the leg, hip and thigh was said to have been tender and sore on pressure for three and one-half months. More definite history could not be obtained. There was apparent recovery from this trouble until some eight weeks previous to patient's entry to the Hospital, when the right leg and thigh became sore. The muscles jerked almost continuously and later a severe pain developed referable to the posterior part of the thigh and leg. Fever apparently did not start until four weeks after the onset of the present trouble. It began in the afternoon with a chill and rose to 104°. After the fourth day the patient began to sweat at night, which he thinks

was caused by large doses of aspirin taken at that time. Upon entrance to the Hospital the patient had a temperature of 104.2° and complained of great pain in the right leg, largely referable to thigh and hip. Incomplete examination at that time showed the lungs to be entirely negative, heart negative except for the rate of 100 to 110, abdomen lax, spleen and liver not felt. Red blood cells were 4,500,000, whites 8,250 and hemoglobin 80 per cent. Miescher. Because our attention was so largely called to the hip an X-Ray was taken and Dr. Van Zwaluwenburg reported "no pathology discoverable and advise ray of lower lumbar and sacrum." Following a more careful examination the reflexes were found about normal or slightly increased, and the right leg below the knee was observed to be slightly larger than the left, warmer and more tender on slight pressure. The upper third of the right tibia was somewhat larger than the left, not so smooth, pain was somewhat more intense over the bone after constant light pressure. Dr. Klingman examined the patient with special reference to nerve tenderness and could find none. A second blood count was made, which showed red cells, 4,320,000, whites 8,800 and hemoglobin 70, Miescher with a differential count of small lymphocytes 11 per cent., large lymphocytes 6 per cent., transitionals 3 per cent. and polymorphonuclears with slight increase of platelets. A Widal on the blood was done at this time with the result that a dilution 1-20 agglutinated in three minutes, complete in 12, 1-40 began to agglutinate in four minutes and complete in forty minutes, 1-80 about two-thirds agglutination in one hour, 1-160 none in half hour and partial agglutination in one hour.

An X-Ray of the right leg showed "central erosion at the juncture of the upper and middle third of the tibia with marked cortical sclerosis and periostitis. Sclerosis extends for a distance of about six inches." Diagnosis "Osteomyelitis."

Upon the physical findings, absence of a leucocytosis, marked positive Widal reaction, the diagnosis of typhoid osteomyelitis was deemed justifiable, whereupon the patient was transferred for operation.

Upon opening the shaft of the tibia by Dr. Darling, considerable pus and sequestrum were removed. A quantity of the pus and a small sequestrum was taken for bacteriologic study. On agar streaks and in beef tea pure cultures of actively motile bacilli were obtained, answering the characteristics of *B. typhosus*. The first transplant, twenty-four hour culture, was agglutinated against the serum of a convalescent typhoid patient whose serum was previously tested against our known typhoid culture and also against the patient's own serum with the following result.

Against the convalescent typhoid serum
Dilution 1-20 complete agglutination in 15 min.
Dilution 1-40 complete agglutination in 18 min.
Dilution 1-80 complete agglutination in 40 min.

Against the patient's serum
Dilution 1-20 agglutination complete in 11 min.
Dilution 1-40 agglutination complete in 13 min.
Dilution 1-80 agglutination complete in 50 min.

Control was still very active at the end of one hour and fifteen minutes. No agglutination. There was marked dissolution of the bodies of the organisms in all the dilutions against both sera at the end of one hour.

Dr. Van Zwaluwenburg upon a recent examination of the plates of the tibia expresses the opinion that the process is primarily a medullary or cortical one based chiefly upon the fact that the periosteum is relatively smooth and shows no elevations or roughening common to a primary periostitis. Of special interest in this case is apparently a primary infection with a pure culture of a *B. typhosus* in the medullary and cortical portion of the bone causing a pyogenic process. A case of osteomyelitis with no leucocytosis and a marked fever reaction which is largely against the rule in the reported cases of bone infection with *B. typhosus*.

Keen in his "Surgical Complications of Typhoid Fever" collected the cases of bone infection with *B. typhosus* from the literature of twenty years and found 208 cases. In bacteriologic examination in fifty-one cases, thirteen showed pus organisms, thirty-eight typhoid bacilli, fourteen of which were in pure culture. He does not classify the cases as to the primary location of the infection but evidently from the discussion the larger number are primary cases of periostitis with abscess formation and caries following. Very few of the cases were primarily localized in the cortical or medullary portion of the bone. McCrea states that typhoid osteomyelitis with a sequestrum is relatively rare and the more usual types of typhoid bone infection is a chronic process resembling a cold abscess. Nichols in Keen's system of surgery states that the typhoid bacillus may cause suppurative processes in the bone. As a rule the lesions are small in extent. They are usually superficial and the destruction of the marrow is slight unless there is a secondary infection.

Keen reports a long list of experiments in which a mixture of typhoid bacilli and staphylococci were used which showed that the cocci had greater viability than the bacilli which seemed to prove that if the infection was found to be one of typhoid bacilli it is unlikely that the cocci ever existed there and further experimental local inflammations with suppuration were produced in bones by pure cultures of typhoid bacilli. In this connection Colzi's experi-

iments are interesting from the fact that intravenous injections of *B. typhosus* in the veins of rabbits gave negative bone lesions unless fracture or injury to the bone was made previous, when eleven out of fourteen gave bone infection.

From the fact that the *B. typhosus* is found more frequently in the bone marrow than in the gall bladder and spleen, it is rather singular that bone disease is not more frequently found to be caused by the typhoid bacillus.

From the cases reported the time of occurrence of bone lesions varies from immediately following typhoid fever to as long as seven years afterwards. The tibia is most frequently affected, next in order are the ribs, femur, ulna, humerus, pelvis and foot, with practically no bone of the body exempt. The prognosis is usually favorable although there is great tendency to

chronicity and subsequent attack in other bones. In this case the high fever with remissions was followed by almost normal temperature after drainage of the bone lesion.

DISCUSSION.

DR. C. B. G. DE NANCREDE: I think the doctor has covered the subject very fully. I would like to call attention to one point. Bone infections which occur in cases of bacteremia are practically never known unless you have some traumatism of the bone. This is a very old observation. You can put almost any quantity of cultures into the blood and they will disappear in a very short time unless a contusion, juxta epiphyseal strain or fracture of a bone occurs during the time the microbes are still present in the blood, when osteomyelitis may develop.

Ginseng.—Despite the fact that the peculiar man-shaped root of ginseng has no medicinal value so far as science can determine, the Koreans for decades paid their tribute to China in ginseng. In China it is reported as a cure for all ills that human flesh is heir to and has a special reputation as an aphrodisiac. Perhaps there is no better illustration of the virtues of aphrodisiacs in general than the fact that the Chinese are quite sure of the marvelous efficacy of ginseng though no evidence of its virtues can be obtained in the West (*Jour. A.M.A.*, Oct. 24, 1914, p. 1486).

Celerina and Aletris Cordial (Rio Chemical Co.)—*Celerina* is a shot-gun mixture said to contain, in addition to 42 per cent. of alcohol, kola, viburnum, celery, cypripedium, xanthoxylum and aromatics. *Aletris Cordial* is said to contain 28 per cent. alcohol (more than is found in wine) besides three obsolete and valueless drugs, aletris, helonias and scrophularia. Whatever virtue there is in *Celerina* and *Aletris Cordial* is derived from the alcohol (*Jour. A.M.A.*, Oct. 17, 1914, p. 1411).

Use of Paraffin Oil.—While it is recognized that cancer may be caused by chronic irritation, the paraffin oil used medicinally is bland and non-irritating and there is no reason to suppose that its continued use would cause cancer. A good quality of oil may be obtained by prescribing *Paraffinum Liquidum* or *Pertolatum Liquidum Grave* (*Jour. A.M.A.*, Oct. 17, 1914, p. 1411).

Hemo.—The Thompson Malted Food Company, Waukesha, Wis. which sells Hemo, Malted Milk and Malted Beef Peptone, offers its stock to physicians with promises of large profits. Hemo is advertised as "the food that builds up weak stomachs" and is stated to contain "the iron of spinach, the juices of prime beef, the tonic properties of selected malt in powdered form and the richest sweet milk." Hemo is "promoted" by absurdly extravagant claims and pseudo-scientific nonsense. Disregarding the

question whether or not this is a stock jobbing scheme or whether the purchase of the stock is a good investment, physicians who buy the stock and prescribe the firm's output are not giving their patients a square deal (*Jour. A.M.A.*, Oct. 24, 1914, p. 1494).

Action of Sodium Cacodylate.—Containing its arsenic in organic combination and in the pentavalent state, which becomes therapeutically active only as it is reduced to the trivalent inorganic state, sodium cacodylate is so slightly toxic that therapeutic doses do not give rise to toxic symptoms. There is nothing in the literature to show that sodium cacodylate has a special action on the eye and blindness from its administration need not be feared (*Jour. A.M.A.*, Oct. 3, 1914, p. 1223).

Agar-Agar-Biscuits.—To make agar-agar biscuits it is only necessary to add finely powdered agar-agar to the flour used in making the biscuit. The amount should be, if possible, sufficient so that a dose of 5 Gm. will be contained in each biscuit (*Jour. A.M.A.*, Oct. 3, 1914, p. 1224).

Glycothymoline not Harmless.—Glycothymoline is a mild antiseptic practically devoid of germicidal power and when used as a simple mouth wash is practically harmless. However, the recommendations to the public for its use in serious diseases make it a menace to the public health—and physicians are responsible for its wide spread use (*Jour. A.M.A.*, Oct. 10, 1914, p. 1304).

Phenolax Wafers.—These are tablets said to contain phenolphthalein 1 gr., "aromatics" and sugar enough to make five grains. It is a question what purpose the "aromatics" and sugar serve, perhaps these are to mislead the unthinking to believe that this combination has some mysterious value over phenolphthalein itself (*Jour. A.M.A.*, Oct. 17, 1914, p. 1410).

The Detroit Society of Neurology and Psychiatry

C. W. HITCHCOCK, Detroit, President
GUY L. CONNOR, Detroit, Secretary

The annual meeting the Detroit Society of Neurology and Psychiatry was held in the Wayne County Medical Building, Detroit, on October 1, 1914 with the President, Carl D. Camp, in the chair. There were twenty-one members present.

The minutes of the previous meeting were read and approved.

The annual report of the Secretary showed that six meetings were held with an average attendance of nineteen, that papers had been given by seven members and that eighteen had taken part in the discussions. The total membership was reported as thirty-two, one having been elected and one having died during the year.

The annual report of Treasurer was read and accepted.

The following officers were elected:

President—C. W. Hitchcock, Detroit.

Vice-President—Theophil Klingmann, Ann Arbor.

Secretary-Treasurer—Guy L. Connor, Detroit.

Members of the Council—E. A. Christian, Pontiac and D. R. Clark, Detroit.

The auditing committee found the Treasurer's accounts correct.

The following *In Memoriam* notice of Dr. Long of Ionia was read by C. W. Hitchcock:

"Oscar R. Long, a member of this society, died suddenly in the early hours of September 10, 1914.

"Born in 1850, in Pennsylvania, he was educated in the public schools of that state, the Medical Department of the University of Michigan and the Detroit College of Medicine.

"Ten years after taking up practice in Ionia, Doctor Long was appointed Superintendent of the Asylum for the Dangerous and Criminal Insane and continued in charge of that Institution until his death.

"Deeply interested in mental disease and the welfare of the insane, Doctor Long was often consulted as an expert. He was a man of positive convictions and often testified in cases of medico-legal interest.

"He was a frequent attendant at our meetings and his presence will be missed from our gatherings.

"The Society extends its earnest sympathy to the widow and daughter who survive him."

It was voted to spread it upon the records and send a copy to the widow.

The Secretary was instructed to correspond with the Editor of the *Journal of the Michigan State Medical Society* relative to the publication of our transactions in that *Journal*.

PROGRAM.

David Inglis of Detroit reported the following cases:

Dr. Inglis presented two cases of muscular atrophy involving in each case, the right hand; both cases came to him in twenty-four hours of each other. In both the duration has been the same, to wit;

six weeks, yet the history of causation had been utterly unlike.

CASE 1.—Age 26 years; was shot in the upper arm, in March, 1914; X-Ray plate shows that the bullet had splintered into many fragments which still remain scattered in the flesh of the arm.

Evidently, from the history, the ulnar nerve was damaged but not cut through. An ulnar neuritis was set up of which there are still evidences in the way of numbness, impaired sensation and power, but **no atrophy**. The interesting phase of the case is that, at least four months later, he developed a rapid muscular atrophy on the radial side of his hand but **no pain**; paresthesia or motor defect has never pointed to any radial neuritis. Whatever motor defect there is has been the result of his atrophy but did not precede it. Dr. Inglis believes that he has degenerative changes going on in the cervical anterior horns. The relation of this to his gunshot wound is probably by an ascending ulnar neuritis.

So many, and so scattered are the fragments of the bullet that any attempt to dissect them all out would probably cause more damage than the presence of the foreign bodies.

CASE 2.—Age 23 years, has been a riveter for two and one-half years. The jarring from use of a pneumatic riveter seemed to have no ill effect until he rapidly developed an atrophy of the thenar and hypothenar eminences and the interosseous muscles. At times he has a transient rigidity and immobility of the entire hand.

Careful questioning and examination fail to bring out any cause of the atrophy save the incessant jarring of the pneumatic hammer.

When one considers the severity of the vibration to which riveters are subjected the wonder is that neuritis and muscular dystrophies are not much more common than they are.

Dr. Inglis had expected a third case of muscular atrophy—in the absence of the patient he read the following brief abstract of the case:

"Eight years ago I was called to see a lad of 17 years who had developed a singular paresis of the entire body with marked universal atrophy of the muscles, yet some movement still persisted.

He had then lost weight from 160 pounds to about 125. At that time it seemed largely a problem of maintaining life itself although there were no bulbar symptoms; I made this note: There is still a chance of improvement if your nerves can be well fed, for the paralysis is not completed.

Under forced feeding he came up. Now, September, 1914, he is a fine robust young man whose only evidence of his former universal atrophy is an atrophy in both thumb muscles and in his feet. These have persisted since the original trouble.

This case was originally, I believe, one of a universal toxemia of the peripheral motor nerves, although it is not impossible that it was a non-destructive affection of the anterior horns.

We draw definite lines in theory between Landry's paralysis, progressive atrophy and degeneration of motor nerves. Nature, at times, obliterates our lines.

Louis Miller of Toledo reported a case of Tumor of the Cervical Cord.

C. W. Hitchcock of Detroit reported a case Sarcoma of the Cerebellum and Plinn E. Morse gave the pathological report on the same.

W. H. Riley of Battle Creek reported the following two cases illustrating the beginning of Degeneration of the Spinal Cord, the Result of Toxemia.

A REPORT OF TWO CASES ILLUSTRATING
THE BEGINNING OF DEGENERATION
OF THE LATERAL AND POSTER-
IOR COLUMNS OF THE SPINAL
CORD, ATTENDANT WITH
SYMPTOM OF TOXEMIA
AND ANEMIA.

W. H. RILEY, M.D.
BATTLE CREEK, MICH.

Degeneration or Sclerosis of the lateral and posterior columns is one of the most common lesions of the spinal cord. This condition is usually described in text books and medical literature under the head of commercial sclerosis of the spinal cord. Many other names have been used to describe this pathological condition, or the symptoms which arise from it. The degeneration of the lateral and posterior columns of the cord is found present in a great many different diseases, and the nature of the lesion which finally leads up to and ends in the degeneration of the lateral and posterior columns of the cord is not the same in all of these different diseases. They all end, however, in practically the same way, namely, in a sclerosis of these columns of the cord. The lateral and posterior columns of the cord are found degenerated or sclerosed in many cases of general paresis. Erb was the first to point out that in the later stages of tabes dorsalis, the lateral, as well as the posterior columns of the cord are sometimes sclerosed. This condition may result from a diffuse myelitis, with resulting secondary ascending and descending degeneration in the posterior and lateral columns. It may follow a leptomeningitis. It may be present in multiple cerebral spinal sclerosis. It follows as a result of embryonic and hereditary defects, as is seen in the family ataxias, Fredricks ataxia. It is the result also usually in the later periods of life, of arterio sclerosis of the penetrating branches from the posterior spinal artery of the spinal cord. It may also come, as pointed out by Marie, from syphilitic endarteritis of these same branches. It follows also as the result of pellagra and other infections, such as influenza and malaria. It also is the result of certain chemical poisons, such as alcohol, lead, etc. It is very common in the anemias and cachectic states, and it is to this last named class that the two cases here reported are particularly related. The degeneration or sclerosis of the lateral and posterior columns of the spinal cord, as found in the anemias and cachectic states, have been more recently described, in our medical literature, particularly by the English, writers, under the head of "Sub-acute Degeneration of the Columns of the Spinal Cord" or "Sub-acute Sclerosis of the Columns of the Spinal Cord." Each of the above diseases differs from the rest to a greater or less degree in cause, symptomatology and pathology.

It is not the purpose of the writer here in reporting these two cases, to discuss in full or dwell at length upon the degeneration of the lateral and posterior

columns of the spinal cord in the anemias and cachectic states. There are a few general statements, however, which may be proper to make in this connection. First of all, the writer thinks that cases of this kind should be separated from the large class above mentioned, and should be considered as a distinct entity, since they have quite an apparent cause and present quite a definite clinical picture, and have quite a definite pathological basis, which is different from the Sclerosis of the cord found in other diseases and other conditions.

For several years past the writer has seen a large number of cases of this kind. I cannot here give any definite statistics but judging from my experience this condition is one of the most frequent diseases that affects the nervous system, almost, if not quite, as frequent as tabes dorsalis, paralysis agitans, or the hemiplegias, resulting from vascular lesions of the brain.

The writer has seen these cases in all different stages of the disease, but it is especially the earlier stage that I desire here to call attention and which the two cases here reported are given for the purpose of reporting the symptoms of this disease in its very early stage.

In regard to the cause of this disease, no definite statement can be given. There is much evidence pointing toward the idea that it is the result of a toxemia, resulting from absorption of poisons from the intestinal tract, or from defective glandular activity, or from some other source. This is evidenced by a history of constipation, by frequent attacks of diarrhea, by the presence of chronic mucous colitis, with a large amount of indol in the stools and indican in the urine, by a diminution or absence of free hydrochloric acid in the stomach and by the examination of the blood, which shows a relative lymphocytosis and a diminution of the polymorphonuclear neutrophiles in the blood, as well as by other changes in the blood, usually indicating anemia to a greater or less degree.

It is a disease which occurs usually in middle life. In the writer's experience most cases are seen between the ages of 40 and 65. According to Turner and Thomas Granger Stewart, most cases are seen between the ages of 44 and 65. Rothmann says most cases occur between the ages of 50 and 65, fewer between 40 and 50 and the youngest case was 36 years of age.

In regard to the sex, opinion is divided, some claiming that more cases are seen in the male, others in the female. Out of twelve cases reported by Dana, nine were females. The writer has seen more cases in the male than in the female.

A neuropathic constitution is also present in many cases as an etiological factor.

Risien Russell divides the disease into three stages. The first stage, in which the prominent symptoms are paresthesias of the extremities, slight spastic or ataxic paraparesis, with extensor plantar response. Second stage, in which the paraparesia increases into a spastic paraplegia, with increased reflexes.

ataxia, and anesthesia in the legs and trunk. Third stage, in which there is a flaccid paraplegia, with tendon reflexes absent, complete segmental anesthesia and paralysis of the sphincters, bed sores, and mental symptoms. According to the writer's experience, the order in which the symptoms appear is as follows: First, paresthesia of various sorts, in the feet and legs and hands. These paresthesias begin very often in the feet and later in the hands. They consist of numbness, burning, coldness, a feeling of constriction, like a band about the legs, and other forms of paresthesia, hyperesthesia, increased sensitiveness in the soles of the feet and finger tips, especially to touch. Dull aching pains, stiffness in the legs and lower back, and sometimes darting sensations, like a current of electricity passing through the legs. These symptoms are all prominent in the legs; there may be some numbness and paresthesias in the fingers and arms, usually after they have first appeared in the legs. In the writer's experience these initial symptoms may continue for months or even years before any other symptoms appear, and they continue as the disease progresses, until they are entirely displaced by complete anesthesia and sensory loss.

It is of the greatest importance that these symptoms are recognized and fully appreciated in the early stage of this disease.

The next group of symptoms to appear, in the writer's experience, is a mild grade of spastic paraparesis, consisting of a light grade of weakness in the legs, with inco-ordination and ataxia, associated with increased knee jerk, Babinski toe phenomena and loss of the abdominal skin reflexes. This group of symptoms are associated with the sensory disturbances, which have appeared before them. These spastic paraparesias increase in severity to a well developed spastic paraplegia, with marked increased tendon reflexes and ataxia.

Following this group of symptoms is the cutaneous sensory loss, consisting of cutaneous anesthesia, to touch, pain and temperature, usually first appearing in the legs and segmental in distribution. Following this we have the flacid paralysis, the loss of reflexes, paralysis of the sphincters, bed sores, and complete anesthesia in the legs and trunk, limited to a definite level in the trunk, having a well defined segmental distribution in the trunk. And with this there is often stupor, mental weakness and finally death.

The two cases here reported are given for the purpose of calling attention to the symptoms present in the very early stages of this disease, and to emphasize the importance of recognizing their significance in the early stages.

CASE 1. Mr. F. C. M. (96493). Of German descent, 40 years of age. Manufacturer by occupation. Comes for treatment for "Rheumatism and stomach trouble." Examined November 19, 1913.

FAMILY HISTORY.

Father and mother still living and in good health. No brother living. Three brothers dead; two died in infancy, and one died at the age of 12 from "lack of blood." Three sisters living and all healthy. One sister died

with consumption at the age of 22 or 23, caused by exposure to cold. Father formerly suffered with rheumatism for a number of years. No other hereditary diseases or traits in the family.

PERSONAL HISTORY.

HISTORY OF PREVIOUS DISEASE.—Patient had mumps when he was a child. Thinks he had no other of the infectious diseases during childhood. He had whooping cough three years ago. Made good recovery, with no bad results. Has had no other infectious diseases or illness of any kind previous to his present trouble. Has never had any injuries to his body, and no surgical operations. Has always been healthy.

HABITS.—Previous to four months ago patient was a heavy smoker. Smoked from twenty-five to thirty cigars a day; at present smokes one cigar occasionally. Has never used alcoholic liquors. No drug habit. Tea and coffee in moderation. Plain foods. Regular in his meals. Small eater.

HISTORY OF PRESENT ILLNESS.—His present illness began about two years ago, with numbness and coldness in both feet; this has continued up to the present. For some weeks past he has had some difficulty in walking and about this time there was also numbness in his hands. For several years he has had more or less trouble with his stomach, indigestion and constipation, and for some time past occasional attacks of diarrhea. He also has had dull aching pains in his legs for the last four or five months.

PRESENT SUBJECTIVE SYMPTOMS.

RESPIRATORY SYSTEM.—Negative.

CIRCULATORY SYSTEM.—Heart's action regular.

DIGESTIVE SYSTEM.—Appetite variable. Teeth in good condition. More or less indigestion. Bowels very constipated, and have been for a number of years. Obligated to take enemas and medicine to move bowels. Passes no blood. No hemorrhoids or piles, although he states that his rectum is sore at times.

GENITO-URINARY.—Denies syphilis. Gonorrhea fourteen years ago, which eventually caused a urethral stricture. Thinks he was cured.

NERVOUS SYMPTOMS.—At the present time he has numbness in his hands and in his feet and legs, dull aching pains in his legs, and a stiff feeling in his legs, and cannot walk as well as formerly. He is rather nervous and depressed mentally and worries considerably about his condition. Has no headache. Sleeps fairly well. He states that his taste, smell, hearing and vision are all normal.

PHYSICAL EXAMINATION.

GENERAL.—Patient is five feet, ten one-half inches tall. Weight in health 160 pounds. At present 148 pounds. Good size frame and skin rather pale and sallow. A few pimples scattered over the chest, back and shoulders. Is rather thin in flesh. Small amount of subcutaneous fat. Muscles small and muscle tone reduced. Right index finger somewhat deformed, otherwise bones and joints normal.

CHEST.—The chest is long and flattened. Bones of the chest are visible. Fossae in the neck deep. Thyroid and lymphatic glands not palpable. Physical examination of the lungs negative. Heart tones are diminished in intensity. No murmurs heard. Apex beat in normal position. Radial arteries are not palpable. The blood pressure varied from 96 to 104 systolic and from 50 to 62 diastolic.

ABDOMEN.—Abdomen flattened. Abdominal muscles weak and relaxed. Stomach and bowels somewhat prolapsed. No tenderness on pressure over the lower margin of the liver.

NERVOUS SYSTEM.—The cutaneous sensations are objectively normal to touch, pain, temperature, in the feet, hands, legs and all parts of the body. Smell, taste, hearing and vision all normal. Pupils normal in size, regular in outline and respond normally to light. Patient complains of numbness of feet, legs and both hands. Also of dull aching pains in the legs, burning sensations in the feet. The patient is able to walk about, but claims that he is some weak in the legs and cannot walk very far without becoming tired. There is no localized paralysis in the muscles of the body. Patient is able to move all the joints of his feet, legs, hands and arms. Muscular strength in the legs is somewhat below the normal. There is no abnormal movement, such as tremors, spasms or convulsions. Gait is somewhat stiff and a little awkward. He has a feeling of stiffness in both legs. The knee jerk is present in both legs and normal, or possibly slightly increased. There is no ankleclonus and no Babinski Toe Phenomena. The plantar and cremasteric and abdominal skin reflexes are all present and normal.

Two separate analyses of the urine, one made November 20, 1913 and the other January 2, 1914, showed that the kidneys were in a healthy condition, and the urine normal, except for the presence of some indolacetic acid, which was found present in the first test. Two separate analyses of the blood, made on different times, showed nothing of any special interest. While a third test showed a marked reduction in the red cells, reduction of white cells, and a high color index. Three separate analyses of the contents of the stomach showed the total acidity of the stomach very much reduced, and the total absence of free hydrochloric acid. The analysis of the stool showed the presence of strings of mucus and a number of putrefactive bacteria. Examination of the rectum and lower bowel showed the patient to be suffering from a

marked catarrhal colitis. Sphincter of the anus very tight.

It will be seen from the examination of this case that the only symptoms present relating to the nervous system, were the numbness in the hands, feet and legs, dull aching pains in the legs, some stiffness in the legs and inability to walk quite as well as formerly on account of the stiffness in the legs. Outside of this there were no abnormal symptoms of any kind relating to the nervous system.

The patient was put on a treatment consisting of regulation of diet, the use of various hydiatic remedies, massage, special exercise, various forms of electricity and special local treatments for the bowels. Under this treatment the patient made very substantial gain.

The patient left my care February 14, 1913. A note taken from my records of the case on the day of February 14, 1913, states that the pains in the hips and legs are much improved. The numbness and burning sensation in the feet is improved. The patient feels stronger. The stiffness in the legs has improved. He has gained 27 pounds in weight and goes away feeling much better.

The patient returned and came under my care again September 4, 1914. Since he was last here he has been engaged in business part of the time and part of the time resting in San Diego, Calif. His general health has kept in fairly good condition, except this condition of the legs, for which he was treated before. He thinks the symptoms in his legs have not improved any since he has been away and very recently they have been getting worse. Thinks he is weaker in the legs than when under my care before. The numbness in the feet and legs is also increased in severity. Is able to walk very little, largely on account of the sensory disturbances in his feet and legs. Usually goes about in a wheel chair. Has dull pain in the legs. Complains of considerable pain and discomfort in the coccygeal region. Is more or less depressed mentally. Appetite is good. Bowels are still constipated. Has had four attacks of diarrhea in last few months. He also has some difficulty in passing his urine and at times difficulty in retaining his urine.

PHYSICAL EXAMINATION.

HIS PHYSICAL EXAMINATION shows nothing new but what was found in the previous examination, except the examination of his nervous system. The patient is now much weaker in his legs, can only walk a very short distance without help; goes about in a wheel chair most of the time. Is able to move all of the joints in his legs, but the movements are some weak. Also able to perform all the normal movements of the hands and arms. There is no weakness in the hands or arms. There is no tremor or spasm or any abnormal movements of any kind. Knee jerk is increased in both legs. There is no ankleclonus. There is Babinski and Chaddock's Toe Phenomena present in both feet. He has a weak and somewhat stiff spastic gait. Has a slight degree of rigidity and spasticity of the muscles of the lower extremities. Pupils are normal in size, regular in outline and respond normally to light and accommodation. He still has the numbness in his feet and hands, dull aching pains in his feet and legs and feeling of stiffness in the legs. The cutaneous sensations of touch, pain and temperature are objectively normal. There is no anesthesia. The special senses are all normal, as previously reported. Patient had difficulty in emptying bladder. The blood pressure at this time varied from 88 to 105 systolic and from 66 to 76 diastolic.

The analysis of the urine showed no disease of the kidneys, and nothing wrong with the urine except the presence of some indolacetic acid. Several analyses of the contents of the stomach showed the absence of free hydrochloric acid. The analysis of the stool showed considerable mucous present, a large number of putrefactive bacteria and considerable indol. Two Wassermann tests of the blood serum, taken at different times, were negative. Four or five different examinations of the blood showed the hemoglobin, the red cells and the white cells all reduced, with a high color index, above one, also the differential count showed a relative leucocytosis with a diminution of the polymorphonuclear neutrophiles, and the presence of macrocytes, microcytes and poikilocytes. (The blood reports are herewith given below in detail). These findings in the analysis of the blood are very significant. They illustrate the changes which are often found in the blood in this class of cases, and indicate the early stages of pernicious anemia. The case illustrates nicely, I think both the nervous and other symptoms of this very serious disease, as seen in the very early and later stages of the disease.

When the patient was first examined the only symptoms found were the subjective disturbances of sensation, consisting of various paresthesias, like numbness in the feet, legs and hands, burning in the feet, aching pains in the legs, with some stiffness. There was no other symptom indicating any disturbance of the nervous system, and it is easy to understand how this might not be considered of sufficient importance to indicate the beginning of any serious organic disease of the spinal cord.

When the patient was seen ten months later he not only had all of the subjective sensory symptoms which were found present in the first examination, but in addition to this the increased knee jerk, the presence of Babinski and Chaddock Phenomena and quite a decided weakness in the legs, with a stiff gait, which indicated very clearly and definitely that he had an organic disease of the spinal cord, which undoubtedly was present to some degree, at least in the sensory tracts of the spinal cord at the time of the first examination, ten months previous. The examination of the blood, with the

regular count and also differential count, throws much light upon these cases, as it indicates the presence of a toxemia and a beginning of pernicious anemia, which is often present in this class of cases. The constipation, attacks of diarrhea, mucous colitis and the absence of free hydrochloric acid in the stomach and the low blood pressure are also significant symptoms and help to form the clinical picture of this disease.

CASE 2. Mr. S. C. T. (92089). Aged 48. Married. American by birth. Occupation, ice manufacturer. Examination on July 5, 1914.

Negative.

FAMILY HISTORY.

HISTORY OF PREVIOUS ILLNESS.

The patient states that he has always enjoyed good health and never been sick up to the present time.

HABITS.

Never used tobacco or alcoholic liquor. Uses coffee once a day in moderation. Is fond of sweets and condiments.

HISTORY OF PRESENT ILLNESS.

Patient states that his normal weight is 137 pounds, but for the last two years has been gradually losing flesh until at the present time he weighs 40 pounds less, or 97 pounds, net. Last October was taken sick with carbuncles in the lower part of the back of his neck. Since then he has been suffering with carbuncles coming and going. At present he is nearly well of his last crop. About three weeks ago he noticed that he was not very steady on his feet, and on walking would tend to stagger and stumble to a moderate degree. At the same time his feet became very sensitive to touch. Tips of the fingers of both hands and both feet and legs were very sensitive to light touch (hyperesthesia). When he strikes an object hard or presses hard with his hands or feet, it does not distress him so much. Sometimes this hypersensitive condition of the hands and feet is very distressing, and almost unbearable, and at times extends up to his legs and about the lower part of the abdomen. There is also a band constricting sensation about the lower part of the abdomen, which he has had for two or three weeks past. He also has sort of a sharp, cutting pain along the perineum at times. Has dull aching pains in the lower part of the abdomen, which he describes, as bearing or dragging-down sensations, and also a peculiar feeling about the legs, which he describes as tight, or constricting feeling, and he likens it to having his leg wrapped tight with an adhesive plaster. Also at times he has sensations like electric waves running down his hips to the feet in both legs. He also has sensations of coldness in the bottom of his feet at times. Also has sensations as though his hands were larger than normal. These symptoms have been present only for the last three weeks. In addition to this he is weak on his legs and cannot walk very far without becoming tired and has rather ataxic gait.

PRESENT CONDITION.

RESPIRATORY.—For the last ten years coughed, with thick yellow expectoration; worse on lying down. Some catarrh of the nose and throat.

CIRCULATORY.—Heart's action regular. Sometimes feeling of distress about the heart. No shortness of breath. Feels as though walking on ice.

DIGESTIVE.—Appetite poor. Teeth in good condition. Considerable indigestion. Bowels constipated all his life. No hemorrhoids. Passes no blood or mucus.

GENITO-URINARY.—Gives no history of any venereal disease. In passing his urine the sensation is not normal.

NERVOUS.—He has all of the above mentioned nervous symptoms at the present time. He has this numbness in his feet, legs and hands. Sensation of coldness in his feet. Dull, aching pains in his legs. Constriction sensation about abdomen and feeling of stiffness in the legs, and also a band sensation about the legs. He feels tired and exhausted all the time. Says he cannot walk but a short distance. Is more or less nervous and depressed. He sleeps fairly well. Special organs are all normal.

GENERAL PHYSICAL EXAMINATION.

Patient is five feet, nine inches high. Weight in health 137 pounds. Weight at the present time 97 pounds. He is undersized. Skin is pale and rather dry. Has two or three scars in the lumbar and sacral region as result of recent carbuncles. Is extremely thin in flesh. Emaciated. Little or no sub-cutaneous flesh. Muscles very small and shrunken. Muscle tone reduced. Slight spastic contraction of both knees, more marked in the left. Bones and joints are normal, except for well marked posterior curvature of spine, involving the upper and middle dorsal region. Moderately stooped posture.

CHEST.—Chest is small and deformed on account of posterior curvature of the spinal column. Bones of the chest visible and prominent. Fossa in neck deep. Respiratory excursion is shallow. Normal vesicular murmur diminished.

CIRCULATORY.—Heart tones are diminished in intensity. No murmurs heard. Apex beat in normal position in fifth interspace. Radial arteries somewhat palpable; also small. Blood pressure 98-110 systolic and 58-60 diastolic.

ABDOMEN.—Abdomen is small and shrunken. Abdominal muscles are weak and relaxed. Stomach and bowels are pro-

lapsed. No tenderness on pressure over abdomen. Hepatic and splenic dullness normal. No tenderness on pressure over the lower margin of the liver.

GENTO-URINARY.—Negative.

NERVOUS SYSTEM.—Patient has little endurance. Gets tired in walking but a short distance. Has difficulty in walking. Gait somewhat inco-ordinated and slightly ataxic and weak. Is able to perform all the normal movements of the lower and upper extremities, but the movements of the different joints of the legs are weak and there is also some weakness in the hands and arms. There are no abnormal movements, except some incoordination and ataxia in the legs. The knee jerk is very much diminished in both legs, more so in the right. Tendo-Achilles reflex is present, but diminished. Babinski Toe Phenomena present in both feet. There is no ankleclonus. The body sways considerably when standing, with the feet together and eyes closed. He walks a straight line with the eyes open but staggers considerably from the line when the eyes are closed. Pupils are normal in size, regular in outline and respond normally to light and accommodation.

He has all the subjective sensory symptoms above mentioned, such as numbness in the feet, legs and hands. Feeling of coldness in the feet, as though his feet were on ice. Burning sensation over the sacro and lumbar regions of the back. Binding and constricting sensation from the feet up the legs to the level of the umbilicus. Drawing band sensation about the trunk. Dull, aching pains in the legs. Hyperesthesia to touch in his feet, hands and legs. Sensation like electricity shooting down his legs. The cutaneous sensations are objectively normal to touch, pain and temperature. There is no anesthesia to any of these. The plantar reflex is increased. Cremasteric absent and the abdominal only very slightly present. The sphincter muscles of the bladder and rectum are competent. Empties bladder slowly.

Special senses of taste, smell and hearing and vision are all normal.

The examination of the urine, made at three different times, showed nothing that indicated any organic disease of the kidneys. There is a large amount of indican present in each of the three different analysis. Analysis of the feces shows the presence of a large number of putrefactive bacteria and indol, and a local examination of the rectum showed a catarrhal inflammation of the mucous membrane of the lower bowel. The examination of the blood at four different examinations, taken at different times, showed marked reduction of hemoglobin, red cells and a high color index. Differential count shows relative leucocytosis, with a diminution of the polymorphonuclear neutrophiles and a presence of microcytes and macrocytes and poikilocytes in two different tests, and also shows a large variation in the size of the red cells, with polychromatophilia. In other words, the examination of the blood shows the characteristic changes of the blood, such as is found in the early stages of pernicious anemia.

The diagnosis made in this case was the beginning of degeneration of the lateral and posterior columns of the spinal cord, with toxemia and an early stage of pernicious anemia.

These two cases are simply reported here as illustrative cases. Since I have started to write this report three other cases of this disease, in its very early stages, have come under my observation, which illustrate the early symptoms of this disease even better than either of these cases. They therefore represent a class which is quite large. In the study of these two cases and others we may note the following:

In one case, the early symptoms consist only of paresthesias, and pains in the legs, and hands, which continued for several months before any other symptoms appeared, and among the very early objective symptoms to appear was the Babinski and Chaddock's Toe Phenomena, with the absence of the abdominal skin reflexes. The second case illustrates some symptoms which are not usually seen in very early stages. Usually in the early stages of this disease the knee jerk and other deep reflexes are increased. There are a smaller number of cases in which the knee jerk and deep reflexes are diminished or absent in the early stages. In the second

case here reported the knee jerk and deep reflexes were diminished, and therefore this case is somewhat unusual, at least in this respect.

Further I wish to call attention to the fact that these cases, in the very early stages of the disease should be regarded as serious and that the very early sensory disturbances should be considered as indicating a probable beginning of a degeneration of the lateral and posterior columns of the cord, and should receive careful and conscientious treatment and should be watched carefully from the very start.

I wish also to emphasize the value of the presence of Babinski and Chaddock's Phenomena and the absence of the abdominal skin reflexes, as important objective signs of this disease, which appear early in the disease, and continue with the disease through its several stages, to its termination, or at least to near its termination.

This class of cases in the early stages also emphasize the importance of the need of making a thorough examination of the whole body of the patient when seeking to find the nature of a nervous trouble. The examination of the blood, urine, feces and local examination of the bowels, very often throws very valuable light and helps materially in determining the nature of the nervous disorder of these cases in the very early stages.

When a patient comes to us between the ages of 40 and 65 years of age, complaining of burning, numbness, stiffness and aches and pains in his legs, and with perhaps some slight numbness in his hands, giving a history of having constipation of the bowels for a number of years, with recent attacks of diarrhea, with a skin that is pale, and sallow, and we find upon examination a diminution or absence of hydrochloric acid, a large number of putrefactive bacteria and indol in the feces and evidence of a catarrhal colitis, the presence of indican and other toxins in the urine, and a moderate reduction of the red and white cells of hemoglobin in the blood, with a high color index and relative leucocytosis, with polymorphonuclear neutrophiles reduced. In a case like this, when we seek to make a diagnosis of the nervous side of the case and determine what is the cause of the nervous symptoms in the extremities, we may reasonably conclude that the patient is suffering from beginning Degeneration of the Posterior and Lateral Columns of the Spinal Cord and the case should be regarded as the beginning of a serious disease of the nervous system.

The Society then adjourned.

GUY L. CONNOR, Secretary.

703 Washington Arcade, Detroit.

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DECEMBER

Editorials

UNDER THE HOLLY BOUGH.

Ye who have scorned each other,
Or injured friend or brother,
In this fast-fading year;
Ye who, by word or deed,
Have made a kind heart bleed,
Come gather here.

Let sinned against, and sinning,
Forget their strife's beginning,
And join in friendship now;
Be links no longer broken,
Be sweet forgiveness spoken,
Under the holly bough.

Ye who have loved each other,
Sister and friend and brother,
In this fast-fading year:
Mother and sire and child,
Young man and maiden mild,
Come gather here;
And let your hearts grow fonder,
As memory shall ponder
Each past unbroken vow,
Old loves and younger wooing
Are sweet in the renewing
Under the holly bough.

Ye who have nourished sadness,
Estranged from hope and gladness,
In this fast-fading year,
Ye, who o'erburdened mind,
Made aliens from your kind,
Come gather here.

Let not the useless sorrow
Pursue you night and morrow,
If e'er you hoped, hope now—
Take heart;—unccloud your faces,
And join in our embraces,
Under the holly bough.

—CHARLES MACKAY.

CEREBRO-SPINAL SYPHILIS AND ITS TREATMENT.

The degenerative type of nervous syphilis, paresis and tabes, are grave manifestations of syphilis. Keyes reports that out of a series 504 cases of nervous syphilis, 60 patients died and 175 were permanently disabled in varying degrees.

Recent investigation, especially that pertaining to treatment, has most radically changed our knowledge of yesterday. Today the classification of nervous syphilis is no more that of parasyphilis but that of definite degenerative changes in the cord and brain, directly due to the active living organism of the disease.

The demonstrating of the *spirochaeta pallida* in the brain of paretics and the spinal fluid of other nerve syphilitic conditions has been the stimulus for direct medication to the areas of active degenerative disease.

This form of syphilis is in the patient who often has no knowledge of infection or the patient who only had a sore of short duration.

There is a growing belief, as yet unproven bacteriologically, though clinically more suggestive, that there are different strains of the spirochaete which possess selective action for different structures in tissues of the human body.

Therefore, the patient who manifests cutaneous, periostial, glandular syphilis, or involvements of mucous membranes, rarely ever develops later nerve degeneration, paresis or tabes.

Old forms of treatment in developing tabes or paresis was on the whole most discouraging and hopeless in a large percentage of cases. Often an arrest of the disease was thought to be brought about, improven clinical knowledge being our only evidence. The inability of our treatment to reach the diseased area we now know to be the cause of the failure.

Experimentation has proven that through the spinal fluid we can now directly destroy the organism and through this medium indirectly reach the brain.

Clinical reports, now coming from many sources, of the results following intraspinal treatment of nervous syphilis now covering a period of over two years, are of such startling character as to be almost unbelievable. Paretic patients who were in institutions are again able to carry on normal business transactions;

tabetic sufferers again controlling pelvic function which had been entirely lost for long periods, accompanied by most encouraging gradual improvement of all here-to-fore deranged sensations. Not all are so startlingly improved, but it is an exception to a most constant observation that the early tabes patient is not improved in a varying degree. Clinical improvement goes hand in hand with the spinal serological improvement. The salvarsanized serum method is the safest and seems as effectual as the direct method. This new method of treatment of nervous syphilis is a distinct advance and will be productive of a tremendous amount of good in the relief of a most hopeless disease.

H. R. VARNEY.

POISONOUS FLY PAPER.

There are a surprisingly large number of cases of poisoning of children from one to six years old from the use of arsenical fly poisons. Formerly blotting paper soaked with arsenic was much used. A little piece of this was put in an open saucer with some water and a little sugar. More recently shallow boxes of tin with a wick through the top have come into use, but on account of the habit of children of putting everything to their lips these seem to be as dangerous as the open saucer of poisoned water. In South Africa the authorities have forbidden the sale, except by licensed chemists, of certain arsenical fly destroyers, particularly the tin boxes which have a wick or wicks through which the poison is drawn. The fact that sugar is added to draw the flies makes these boxes especially dangerous to young children.

From the first of July to October 15 the press of a few states reported forty-five cases of poisoning of children from the use of fly poisons, nine resulting fatally within a few hours. In a number of cases the child at the time the report was made was still very sick. In other cases the child was reported as having fully recovered. The reports cover only a few states, so are incomplete. Some cases of poisoning from the use of fly poisons are doubtless never reported, for it is difficult, perhaps impossible, for even an experienced physician to distinguish a case of arsenical poisoning from cholera infantum, the symptoms being so similar. How many children have been poisoned from these fly poisons and the deaths ascribed to cholera infantum can never be known. The cases reported are all children from slightly less than a year old to six or seven years old. In many cases these children are not old enough to tell what they have taken if questioned about their illness, and unless seen taking the poison the chances are that the cause of the child's illness will never

be known and it will be thought the child had cholera infantum. The danger is especially great to the children of the foreign born for as is well known many of the foreigners are slow to call medical aid in case of children's ailments. In country districts, where it often takes several hours to get a physician, it is especially dangerous to use fly poisons.

These fly poisons are often exposed on the window sill because flies are attracted to the light. Babies also are attracted by the light and the window sill being in reach is therefore the most dangerous place to expose poisonous fly destroyers of any kind.

There are as efficient and more sanitary ways of catching or killing flies, and fly poisons if used at all should not be used in any home where there are children or where children may visit.

We have copies of these newspaper clippings on file and will be glad to exhibit them to anyone interested.

Certainly in our propagandas for health conservation, child betterment and educational movements this peril should be recognized and a warning be issued so that the coming summer does not witness a repetition of these fatalities and accidents that are wholly preventable. Arsenical fly destroying devices are as dangerous as the phosphorus match. They should be abolished.

THE TYPE OF PROGRAM THAT WOULD BE OF MOST VALUE AND CREATE THE GREATEST INTEREST AND ITS PRESENTATION.

When a man is elected Secretary of a County Medical Society, he becomes at once aware that he has problems and troubles of his own and the question with him is how to solve these problems and how to eliminate these troubles. One need not have been very long in the office of secretary, before he makes up his mind that the greatest problem confronting him is *the doctor himself*. There is no doubt that he is a creature of environment, and that this environment is a little removed from things earthly. Just as absorption in any great idea transforms a man and sets him walking, so to speak, among the clouds, so it is that medical men being thus separated slightly from material things become poor business men. That is at the same time their bane and their virtue, and it is the circumstance which hindered the progress of medical organization for these many years. After all the doctor is a humanly human man. Will Carleton well describes him as:

"The brave old virtuous doctor
The good old faulty doctor."

We as secretaries have fallen upon goodly times due to the good work of our predecessors.

And so it happens that the great problem "the doctor himself" has been mostly solved by them. But there still remains much for us to do. For instance:

The county society secretary has to decide where the meeting place shall be. He is not long in office before the various schemes of the medical politicians are forced upon his attention. He also becomes aware that in every community there are certain "medical cliques" pulling in different directions. So that whether he acts as pacificator or buffer the result is that "though slightly disfigured, he is still in the ring." It is unfortunate that the County Societies have such a small sum of money at their disposal. In my own society of forty members we have a yearly total of forty dollars. Now forty dollars will give forty men a fair outing for one day a year. Actually the expense of each monthly meeting is borne by the members in the town where the meeting is held, whereas it should be met by the society as a whole, or, failing that, by all who are present.

It may be safely said that the best place for a county society to meet is in a public hall or hotel. The conditions spoken of above make the selection of a physician's office not desirable. Physicians are the most independent men in the world, and also the most finicky. Therefore, the public hall or room is the one of choice. Here the spirit of independence is not lost, indeed the spirit of criticism is fostered, and there is no gainsaying the fact that the most interesting and profitable meetings are those where the "give and take" principle prevails.

What is the reason that doctors located in places from ten to twenty miles or more from the place of meeting will make sacrifices to be present? "Man," saith the sage, "Is a gregarious animal." Now this particular man who is called a doctor may settle in a place which is so small that it can only support one to three doctors. Invariably he will find that even that small field will have its share of advocates of the various fads and cults of these degenerate days. He now begins to feel the great responsibility attached to the practice of medicine and after he has had a few of the jolts that come to us all he becomes aware that there is something in the philosophy of practice of which he was not aware. Here is where he either gets off or he wakes up. If he wakes up he is in a state of mind willing to begin to seek information from others, either openly or by absorption, and that leads to appreciation of the other fellow. Maybe to his surprise his competitor has many stout friends who sing his praises in and out of season. All of these things make a great impress upon his *ego* and he soon yearns for help. This help is at hand—The County Medical Society.

It is indeed fortunate for the medical man

that being a man of more or less general education he has within himself resources for his own entertainment. The social instinct is strong in the make-up of medical men and grows stronger with age since a long and intimate acquaintance with the tragedies of life must produce a rebound or an insanity. A reporter, in describing a gathering of medical men spoke of "these serious-faced but jovial men." Here, again, he is in need of help and the help is at hand—The County Medical Society.

As all roads led to Rome, so it may be said of the events in the life of the practitioner, *all roads lead or ought to lead to his County Medical Society*. Here is the stimulant for his professional career; here is nourishment for his educational training; here is backing for his moral sentiments and here is the wine of joy for his social instincts. Are not these sufficient answers to the question at the head of this article? Of course the member will go miles and miles to the society meeting. He marks that day as a red letter day in the monthly grind. And he has naught but pity for the unsocial wretch who keeps his nose always to the grindstone, sufficient unto himself, and thinking that knowledge will die with him.

What about the social and amusement side of the County Society? Once, while talking with Dr. McCormick, I said that it was first my endeavor as councillor to appeal to the social instincts; in other words to "feed the brute," and he thought that that might be a very good idea. Of course it depend upon the personnel of the Society as to what kind of amusement should be offered. Our own society has had a variety of entertainments—several times we met in a club room where there were billiard and pool tables. Other times we adjourned to a bowling alley and formed teams; again, we go to a theater-play or the "movies;" all these conveniences are now in the small town. Twice have we been entertained by the camps, far in the woods, of members, staying overnight. We have been royally entertained at model farms, and at public institutions, and we visit *with* or *without* invitations the very small towns in the county. With all these social means of enjoyment given the members, *he who refuses them must indeed be shortsighted*. I firmly believe that if social entertainment and light amusement be eliminated in the business of a society, that society will die of dry-rot.

All physicians are epicures in a way, and love to eat good food. Often when together the "Dutch Lunch" serves them better than the "banquet." All of these things are, after all, only the means of revealing ourselves one to another. In retrospection we revise our estimate of this or that one and even our own self is sometimes revealed to ourself in an unexpected light.

Every County Society has its own problems to meet and solve. My own society—and I speak now of the county with small towns scattered through it—has members located over a radius of thirty miles and yet never lacks for attendance. This society has forty members, and while experience shows that a profitable meeting may be held with six or seven, we never have less than fifteen or twenty. We may ask ourselves what it is that induces these doctors at the location ten or thirty miles away to come to the meeting place when they know they will have to stay all night or spend the remainder of the night in getting home. He knows before he starts that he is not going to hear or see some men of national reputation, or be shown the technic of some original research work. And still he comes. Why?

To return to our society problem. This problem is to get members to prepare papers. We know that it takes time and work for any man to write a paper. The trouble appears to be that a man will put off the work until the last day and then he finds more material than he can assimilate in a short time, and so throws up the task. To be sure if one has a thorough knowledge of his subject; some training and a bold front he can present his "paper" acceptably in an extemporaneous talk. However, a talk, while impressive to those who hear it, is not generally couched in as finished sentences and as pleasing periods as a written utterance. Besides, unless a stenographer is at hand, only those present can hear the address, and the benefit to the profession at large through the medical press is lost. But for all these drawbacks the well thought out extemporaneous talk is a life saver for the County Society, and should be cultivated and encouraged.

"The world do move" and so does the medical profession. Our loyalty and our conviction forbids us to admit that it moves in any but the right direction—the direction which inures to the benefit of the patient. Even so, *the direction in which it moves to the benefit of the physician is no less marked*. These marked changes began with the adoption of the present form of application for membership in the County Medical Society, by which one simply "agrees to support its Constitution and By-Laws, and the Code of Ethics of the American Medical Association."

Has this "letting down the bars," so to speak, been of advantage to the profession and to the public? Listen to this from the press:

"NEW CLUB HOUSE—Physicians of Rochester are planning to purchase, for about \$25,000, a building to be used as a club house. The associations which are fostering this enterprise are the Monroe County Medical Society, the Rochester Pathological Society, the Rochester Academy of Medicine, the Rochester Hospital Medical Society, the Rochester Homeopathic Medical Society, the Rochester Hahne-

mann Medical Society and the Blackwell Medical Society."

What's the answer? Evidently the eternal verities of medicine as we knew them are subject to revisions. It is well that it is so. A prophetic outlook on twentieth century medicine might be incomprehensible to us and we might not take it if we could. It is sufficient for us to believe that those tireless workers who brought about the present organization of the medical profession builded well, even better than they knew. They showed astuteness in making the County Medical Society the unit of the superstructure. It goes without saying that every eligible medical man should regard the county society as the apple of his eye. Not only should he be a very active member himself but he should see to it that his influence was used to get new members. Occasionally one finds an eligible man who refuses for one reason or another to become a member. These reasons are always trivial and beg the question. No member should be undecided in his own mind as to what consideration he should give such men in the referring of patients, recommendations for life insurance examiners, etc. In my humble opinion there is something wrong in the moral and intellectual make up of such men and they should be made to feel that they stand alone.

THEODORE A. FELCH,

Secretary Marquette-Alger County Medical Society.

Editorial Comments

The committee that was appointed to revise the fee-schedule that is to serve as a guide in making charges for services rendered in connection with the Workmen's Compensation Act will gladly receive suggestions from any of the members. The committee also desires to remind the members that before this schedule is finally adopted it will be submitted to the various county societies for criticisms and comment.

In making such comments and criticisms it must be remembered that certain provisions of the state law must be complied with and cannot be arbitrarily ignored. There are two sides to the question, the professional and the legal. Correspondence should be addressed to C. B. Stockwell of Port Huron.

Our January issue will contain all the papers and discussions of the section on Ophthalmology and Oto-Laryngology as they were presented at the last annual meeting. It will be an Eye, Ear, Nose and Throat number. It promises to be a most interesting and instructive issue.

A certain medical publication recommends that in view of the European war and its in-

fluences as a causative factor of business depression and financial stringency that physicians exert themselves to collect their outstanding accounts, pay all their debts in so far as possible, buy nothing unless absolutely necessary, incur no further indebtedness and "sit tight" on what money they have. Such a calamity howl is unequalled for. America's golden opportunity is at hand. An opportunity that should be seized and utilized to its fullest extent. While the advice advanced is consistent with business axioms and should be observed at all times the last clause is pernicious. Collect your bills, pay your debts, keep out of debt and do not waste your money, most certainly, but having done so do not "sit tight" and bury your funds in an old tin can. Think and talk less of war. Be alert for successful and safe investments and so maintain a business confidence and activity. Plan and work out the new problems that confront you and force a successful issue without a preconceived conclusion that all the world is out of sorts and that whatever you attempt is bound to result in failure. The purpose and the spirit with which you set out will determine the result and if you want a failure just continue howling danger, war depression, lost confidence etc. Our country's opportunities were never more promising, and it is ours to aid in placing it and its people's industries in the front rank of all the world. Edison, when he found his foreign supply of carbolic acid shut off, did not close shop and bemoan the incident. On the contrary, he worked night and day and in a short time he had surmounted the difficulty and was making his own carbolic acid. You can do the same, to rise above the obstacles that may be threatening your progress. Work, hard work, optimism and faith is what is required. See that the progressive spirit remains uppermost. Strangle the calamity wail; do not go moping about. The doughnut is what we want and not the hole. Have the purpose to bring about better times and better times will surely come.

Do you need accident, health or liability insurance? Are you in the market for office equipment? Are you searching for a health food possessing proven therapeutic value? Do you want prompt and reliable reports upon the specimens that you send in for laboratory analysis? Are you satisfied with the drugs you purchase? Have you longed for a reliable mineral cathartic water? Do you wish to know where there is a good sanitarium to which you can send your patient? These and many of your other wants can be supplied by our advertisers. They are reliable firms and merit your business in preference to all other firms. *The Journal* is sorely in need of this co-operation from every member. Will you not be one of

1,000 members who will write to the following advertisers this month?: Central Business Men's Insurance Co., Radium Chemical Co., Abilena Water, Unele Sam's Breakfast Food Co., Storm Binder, Horlick's Malted Milk Co., Mead, Johnson & Co., The Palisade Manufacturing Co., The DePree Chemical Co. Ten postal cards will do it and only a half an hour of your time is necessary. Boost with us.

At a recent meeting of the osteopaths of this state a resolution was passed requesting representation on the State Board of Health. We have been trying to conceive how and wherein the representatives of this cult have exercised any influence or brought about anything that has served to enhance or conserve public health. We are unable to cite a single instance. Neither are we able to perceive how the efficiency of the health board will be increased by osteopathic representation thereon. Possibly they are imbued with the belief that by causing a universal and periodical manipulation of certain vertebra that epidemics may be thus prevented. Undoubtedly they likewise hold that massage of the spine and joints will effectively immunize the public and prevent typhoid, small-pox, diphtheria, scarlet fever and the other contagious diseases and cause the inhabitants of our state to ignore and violate all preventive measures.

When epidemics threaten, when emergencies arise wherein the public health and welfare are at stake, where disaster occurs and administration to the physical needs of man is needed, in all and every instances when counties, states and nations have needed assistance in administering to those who are in dire need those in authority have directed their appeals to recognized physicians. Civic heads have long recognized that regular physicians and surgeons were alone capable of rendering the effective service that was required. Until the representatives of recently created "pathies" demonstrate their capability to meet such emergencies and their preparedness to effectively and successfully combat and prevent contagion, not until then should they resolve and ask for that which would be folly to grant.

Please do not forget or neglect to write to some of the advertisers in this issue. They are reliable firms and are capable of aiding you in the practice of your profession.

With the beginning of the new year there will occur the bi-yearly session of our legislature. Judged by past experiences that body will probably have presented to it several bills bearing upon medical and health problems. Some of them will be most desirable and constructive legislation while others will attempt

to accomplish the undoing of past enactments of proven merit. During its session it behooves all of us to remain alert and willing to exert ourselves to forestall any destructive conniving on the part of unscrupulous individuals and representatives of questionable pseudo-medical cults and commercial corporations.

In this connection we desire to state that the mere passing of a resolution, while of some value, is wholly inadequate to either secure or prevent legislative enactments. To be effective personal influence and efforts must be exhibited. To exert a wholesome influence and attain the desired ends each county society should appoint a legislative committee. This committee should, when appealed to, promptly interview and enlighten the representatives and senators of their district with the true facts of the points at issue. Don't send them resolutions, see them and talk to them and thus by honorable methods and influence secure their witnessed promises to support desirable and defeat undesirable bills that have a bearing upon public health or medical legislation. Our whole hearted energy and not mere idle resolutions must be universally exhibited. The task is too great for a few individuals. Will your society arrange at its next meeting for this this state of watchful preparedness and so be able to rally to the support of our State Legislative Committee?

This issue completes volume thirteen of our publication. The index of its contents is contained in this number. Without further comment we submit this volume to our members. It is for you individually to appraise its merit and the value it has been to you in the practice of your profession. It is yours also to dictate its future. Acknowledging that mistakes have been committed and errors overlooked we can but offer human fallibility as our only excuse. We court your criticism, suggestions and advice so that we may be aided to make volume fourteen of greater value to all our members. Lastly don't forget to patronize our advertisers and write to ten or more of them before January.

Herewith we are submitting for the information of our readers a frank and reliable statement of interesting facts concerning certain medical journals that pose as "leaders" in the field of medical journalism. These comments are taken from a recent issue of *The Journal of the American Medical Association*. Undoubtedly the editorial or business editors of these publications that have been holding an exalted opinion of themselves and have persistently been tossing bouquets at themselves will rise up in "assumed holiness" and rant forth in a series of invectives that will be punctuated with expressions of "Medical Trusts," "A.M.A. Gang," "Journal Puppets," and other

similar imaginative and manufactured phrases in futile defence of their existence. The fact will nevertheless remain that they do not compose the "Big Six" leaders of all reputable medical journals but that they are the "Big Six" medical journals who lead all others in the questionable and unreliable nature of their advertising pages.

The day of deception, fraud, fakery, and unreliability is past and they who stoop to such levels must realize that their existence is but short lived. Any medical publication that has intrinsic value cannot afford to condone or abet the thrusting upon the profession or the public of those proprietary preparations which are manufactured for the sake of the almighty dollar and not because they possess inherent value. The statements contained in their advertising pages must be as reliable and dependable as are those that are found in the reading pages. A publication that is not honest with its readers in its every avenue of contact merits publicity and the revealing of its nefarious methods. It is indeed regrettable that such conditions exist; we would that the light that governs the members of the American Advertising Clubs' Association could but enter and govern those who direct the policies of these medical publications—to publish only honest ads. It is hoped that the information herewith presented will cause a sane reflection on the part of our readers and that the "come-backs" of these publishers be read with the foregoing in mind. Personal malice did not inspire the exposure.

THE "BIG SIX."

Six Reasons for the Perpetuation of the Proprietary Evil.

"The Big Six" is the modest name assumed by the Associated Medical Publishers in describing the half-dozen medical journals that comprise their association. The Associated Medical Publishers is an organization evidently composed of the owners and publishers of the following journals:

American Journal of Clinical Medicine, Chicago: Essentially a house organ for the Abbott Alkaloidal Company. Was established in 1894, its original name being the Alkaloidal Clinic.

American Journal of Surgery, New York: Originally established in St. Louis, but when purchased by its present owner, was transferred to New York City. Its owner and managing editor was, previous to the time he purchased the American Journal of Surgery, advertising manager for another surgical journal. He still is, essentially, an advertising man, and is said to act as advertising director of a Massachusetts proprietary house.

American Medicine, Burlington, Vt.: Originally established as a weekly in Philadelphia. When purchased by its present owner, it was changed to a monthly, and the place of publication transferred to Burlington, Vt., although its principal offices are in New York City. Its present owner and managing editor conducts an advertising agency that handles a number of proprietary medicine accounts.

Interstate Medical Journal, St. Louis: Practically owned and controlled by a physician who conducts an advertising agency which handles, or has handled, a number of advertising accounts of proprietaries.

Medical Council, Philadelphia: Was established in 1895 and is at present owned and controlled by the widow of its founder.

Therapeutic Gazette, Detroit: Essentially a house organ for Parke, Davis & Company and is published by the general manager of this company.

The Associated Medical Publishers under the caption "Big Six" published the following advertisement early this year: "A banner year is ahead for those firms who plan to develop the patronage and support of the medical profession for their products. Never were the opportunities greater, or the prospects brighter, for enlisting the aid of medical men in the successful merchandising of pure foods, sanitary supplies for the

home, school or public institution, hygienic clothing and foot wear, automobiles and automatic accessories, and high grade specialties in general appealing to the physician personally, or in his professional capacity.

"Through the services of 'The Big Six' reputable firms can secure for products of established merit, the favorable attention of over 100,000 of the country's foremost physicians.

"Certainly no other way of reaching the physician is so effective and economical as the use of advertising space in these recognized high-class journals. Owing to their standing and the fact that medical men preserve them indefinitely for repeated reference, they give a sustained service that is possible by no other class of publications.

"If you have something of real merit to introduce to American doctors, do not fail to investigate 'the Big Six.' It has paid others and paid them well, it will pay you."

An advertisement for the Interstate Medical Journal says in part:

"Here is a journal for the busy, thinking men of the profession who demand authoritative and timely journalism service."

And the publishers of the American Journal of Clinical Medicine:

"Clinical Medicine is the great therapeutic journal. It is not intended for specialists and theorists. It is intended for general practitioners. Every number, every page, every line is selected with that point in view, to give you all the help we possible can. You need it, let us show you why."

The owners of the Therapeutic Gazette tell the medical profession that they regard each subscription as a contract with the physician to furnish him monthly with seventy-six pages of the most reliable information that can possibly be collected on the subject of therapeutics.

"Guarding your rights along these lines as carefully as we do, we beg of you to read the announcements of our advertisers and favor them with inquiries and requests for samples; and when doing so, please be so kind as to mention having seen the advertisement in the Therapeutic Gazette."

Of the Medical Council, we learn that:

"Its pages are filled with scientific material of that brief concise, practical character so easily assimilated and so very helpful in the physician's every day work. Especial attention is devoted to the business side of the physician's life. To the busiest, most prosperous physicians Medical Council has become indispensable. No journal in America is more conscientious concerning the character of its advertising pages than Medical Council."

NOSTRUMS ADVERTISED IN THE "BIG SIX."

Alettris Cordial	H-M-C (Abbott)
Anascarin	Hayden's Viburnum Compound
Angier's Petroleum Emulsion	Micajah's Wafers
Antiphlogistine	Neurosine
Betul-01	Noitol
Bromidia	Palpebrine
Burnham's Soluble Iodine	Papine
Cactina Pillets	Pasadyne
Campho-Phenique	Peacock's Bromides
Celerina	Pepto-Mangan (Gude)
Chionia	Phenalgin
Citrolax	Protonuclein and Protonuclein
Colchi-Sal	Beta
Crotalin	Prunoids
Cystogen Aperient	Resinol
Dermatone	Respirazone
Dioivurnia	Sanmetto
Ergoapiol	Secretagen
Fellows' Syrup of the Hypophosphites	Sedobrol Roche
Formamint	Seng
Gastrogen Tablets	Three Chlorides (Henry)
Glyco-Heroin	Tri-Iodides (Henry)
Glyco-Thymoline	Trophonine
Gray's Glycerine Tonic	Unguentine

In fairness to the Medical Council it should be said that this publication has, during the past six or eight months, purged its advertising pages of many of the more objectionable products. It is understood that further deletions are under consideration.

How careful the owners and editors of the "Big Six" journals are to present authoritative information in their advertising pages is evidenced by the accompanying list showing some of the medicinal articles advertised in recent, 1914, numbers of these six ostensibly high-principled medical journals. Many of the articles included in this list can safely be classed with the more obnoxious nostrums of the "patent medicine" type and like the latter class are, in many instances, simply frauds, the sale of which should not be tolerated.

How closely the method of advertising these several preparations simulates that adopted by the manufacturers of "patent medicines" is evidenced by the fact that within the past year the assertions made in many of the advertisements have materially changed and the statement that the preparation is "an efficient remedy" in place of "a positive cure" is now generally used. To be somewhat more impressive the manufacturers frequently utilize the assertion that their preparation "seems to exert an almost specific effect" or the equally misleading statement, "no remedy at the command of the profession is more valuable than" the preparation under discussion. Not infrequently the advertiser also adds the additional promise that his preparation "will not disappoint you."

A careful study of the accompanying list ought to convince the thoughtful practitioner that many if not all of the nostrums advertised in these several journals are fully as objectionable as those advertised in the daily press and will further convey the rather sorrowful conviction that until a distinct majority of the "100,000 of the country's foremost physicians," who are said to be subscribers to these journals, will devote themselves to the best that is in their profession, we have little or no right to expect that the public at large will believe us to be less gullible than the most unsophisticated layman or that our opinion regarding any one nostrum is not influenced by our interest, direct or indirect, in one or more of the other secret or semi-secret preparations that are equally bad.

Deaths

W. H. Taylor, coroner of Genesee County, and prominent as a physician, died at 9 o'clock October 29, 1914, at his home as the result of a stroke of apoplexy. Dr. Taylor was 41 years old and was born in Pine Run, Genesee County. His father, Philander Taylor, was a native of New York state and came to Michigan about 80 years ago, being among the earliest pioneers in this part of the country. He was a practicing physician. Dr. W. H. Taylor studied with his father and completed his course in the Detroit Medical College in 1896. He first practiced in Clio for three years and the past eleven years of his life has been spent in Flint. Dr. Taylor is survived by his wife and two children.

Correspondence

Dr. F. C. Warnshuis, Secretary Michigan State Medical Society, Grand Rapids, Mich.

Dear Doctor Warnshuis:

In an effort to secure a reliable list of hospitals which may be considered acceptable from the standpoint of furnishing a satisfactory training for interns, our Council has appointed in each state a committee of three to act in an advisory capacity. On these committees we have, so far as possible, secured, representatives of (1) the state medical association; (2) the state licensing board; and (3) a high-grade medical school (where there is one in the state). The committee which has been selected for Michigan is as follows: Dr. Reuben Peterson, chairman, Drs. Benjamin R. Schenk, and W. K. West.

Would it not be an excellent plan for your State Medical Society to take action endorsing this committee and in that way be in position to obtain from the committee an official report regarding the hospital situation in Michigan? An endorsement of the committee and its work by your society would give added weight to such lists as are prepared.

Very truly yours,

COUNCIL ON MEDICAL EDUCATION,
Per N. P. COLWELL, Secretary.

State News Notes

The following officers were elected at the annual meeting of the State Tuberculosis Association that was held in Muskegon on Oct. 29-30:

President—Dr. F. A. Fisher, Hancock.

Vice-President—Mrs. L. E. Gretter, Detroit.

Secretary—Miss Carol W. Walton, Ann Arbor.

Treasurer—Dr. H. J. Hartz, Detroit.

Grand Rapids was selected as the place for holding the 1915 meeting.

We are of the opinion that Dr. W. H. Sawyer of Hillsdale will now either equip his car with electric lights or carry a gas tank key chained to his person, after his experience of running into a telephone pole after dark without lights lit on his machine. We are happy to report that the only damage done was to the car—and to the post.

Dr. G. A. Trueman of Marquette sustained a fracture of the skull when the auto in which he was riding turned turtle. The doctor was taken to Chicago for treatment. We are unadvised as to the outcome of the injury.

The Committee on Legislation and the Publication Committee held a joint meeting in Ann Arbor on Nov. 11. Plans for activity during the coming session of the legislature were discussed.

Dr. Edgar A. Planck, of Union, Cass county, a member of the Michigan State Medical Society since 1896, has been elected to the State Senate from the Seventh Senatorial District.

Dr. T. M. Koon of Grand Rapids is confined to a hospital in Minneapolis where he was taken ill while on a vacation.

Dr. Roy Baribeau of Grand Ledge has located in Battle Creek.

Dr. A. L. Laing of Escanaba has been appointed as the official surgeon for the Soo Line.

Dr. S. R. Light has been elected President of the Bronson Hospital Association of Kalamazoo.

Dr. A. F. Woodward of Pontiac has located in Detroit.

Dr. J. B. Kennedy of Detroit is a candidate for membership on the Detroit Library Board.

Dr. A. B. Spinney of Smyrna has been sentenced to pay a fine of \$20.00 for violating the State Medical Act.

Dr. E. J. Bernstein of Kalamazoo has moved into new offices and is now located at 523 W. Main St.

Dr. W. R. Stringham of Cheboygan is doing post graduate work in Detroit.

By reason of poor health, Dr. J. W. Toan of Muir has given up practice.

Dr. W. M. Harrison of Sodus is now located in St. Joseph.

Dr. N. N. Read of Owosso has moved to Albuquerque, N. M. and is there engaged in sanitarium work.

Dr. I. N. Monfort of Ithaca has sold his practice to C. E. Burt of Belvidere, Ill.

Dr. James Gostanian of the Soo has located in Detroit.

Dr. S. R. Coleman of Carson City has moved to Miami, Florida.

Dr. P. M. Vanden Berg of Grand Haven has been appointed County Jail Physician.

A new addition is being built to the Woman's Hospital of Saginaw.

The Nichols Memorial Hospital of Battle Creek has received a bequest of \$25,000 from Mrs. Hannah Swift of Quincy.

County Society News

BERRIEN COUNTY

The last two meetings of the Berrien County Medical Society were held respectively on October 8, 1914 in St. Joseph, and November 12, 1914 in Benton Harbor.

Dr. Bayard Holmes of Chicago gave an inspiring lecture on the Abderhalden's Reaction at our October meeting. His talk referred more especially to the reaction in Dementia Praecox, although he covered the subject in general most thoroughly. Many questions were asked by the doctors present which were most promptly and thoroughly answered.

Dr. N. A. Herring of Benton Harbor read a report of the State Medical Society at Lansing, after which it was generally agreed by those present that next year would find our delegate not alone from his society at the meeting.

At our November meeting we had the pleasure of a most scientific address by Dr. Herbert H. Babcock, of Chicago, on the Streptococcus Infections and their Relation to Endocarditis. He gave a complete laboratory and clinical description of the streptococcus viridans and showed some excellent specimens of appendicitis, and endocarditis produced by streptococcal infection in the laboratory and clinically.

Twenty-four members and guests were present. After both meetings an informal supper was enjoyed.

MABEL E. ELLIOTT, Secretary.

CALHOUN COUNTY

PROGRAM

Tuesday evening, Nov. 3, 1914 at 8:00 o'clock.
Chamber of Commerce Rooms, Battle Creek.
The Beginning of Degenerations of the Lateral and Posterior Columns of the Spinal Cord, Associated With Toxemia and Anemia, With Brief Clinical Report of Four Cases. Illustrated With Lantern Slides.

Dr. W. H. Riley,

Interesting Case Reports.

Dr. J. L. Ramsdell.

Address: Organization—County, State and National.

Mr. Theo. W. Singer.

ANNOUNCEMENTS.

Our next meeting will be the annual meeting and will occur on the first of December, at which time the annual election of officers will occur, and it is hoped that each committee chairman will have a

report for the Society. May we expect also a report from our Councilor and from our Delegate to the State Society?

The last meeting provided for the appointment of a committee to make arrangements for securing certain old, rare and valuable books and instruments of interest to the profession, and to provide a suitable repository for the same. The President appointed the following members for that committee: Drs. J. C. Brown, C. E. Stewart, A. S. Kimball and A. F. Kingsley.

NEWS ITEMS.

Don't let the fact that this meeting occurs on election day, deter anyone from attending. The polls will be closed before the time for the meeting, and we shall endeavor to receive election returns at the meeting.

Dr. Fred W. Phillips, whose offices are in the Bromberg Block in this city, was elected to membership in our Society at our last meeting, while the applications of Dr. R. E. Dullam and Dr. Carl G. Wencke were received and referred to the Board of Censors. These names are to be acted upon at this meeting.

WESTERN MICHIGAN TRIOLOGICAL SOCIETY

READING OF PAPERS.

Glioma of the Retina with Report of Nine Cases.
D. Emmet Welsh, Grand Rapids.
Atrophic Rhinitis.

J. W. Shank, Grand Rapids.

ATROPHIC RHINITIS.

J. W. SHANK, M.D.

GRAND RAPIDS, MICH.

I wish to present a report of three cases of atrophic rhinitis which I have treated in the past year by radical methods.

CASE 1. Was a young lady of twenty-five who came to me complaining of a sore throat, pain upon swallowing, a more or less constant cold in the head with obstruction of the nose at times and some headache. She was very anemic; examination showed unusually wide nasal chambers, large crusts in the middle and superior meatus and marked atrophy of the turbinates and membrane.

After thoroughly cleaning the nose of crusts, it was easy to demonstrate the pus coming from the middle and superior meatus. An X-Ray showed that the frontal and ethmoids on either side were cloudy. From these findings a diagnosis of atrophic rhinitis with purulent ethmoiditis was made.

Treatment.—Under ether, the ethmoids were completely exenterated, the sphenoids widely opened and found to contain pus. The naso-frontal ducts were enlarged.

The after treatment consisted of cleaning the nasal mucous membrane with cotton mops and applying nitrate of silver solution to the wound areas.

The throat condition improved rapidly and the headaches disappeared. The discharge lessened gradually, until at the end of three months it had practically ceased.

The turbinates and Schneiderian membrane, however, are unchanged. She has been using scarlet red for several months with no apparent benefit in the atrophic condition. Her general condition is greatly improved and she has gained several pounds in weight; no internal medication.

CASE 2. A lady of thirty, who came complaining of a very bad breath and severe catarrh which had lasted several years. She had frontal headaches at times and frequently discharged large malodorous scabs from the nose. She presented the characteristic nose: flattened bridge and wide nostrils. She was markedly anemic with a very sallow complexion.

The rhinoscopic examination presented a picture similar to the first case except that the left antrum was cloudy and found to contain pus upon irrigation.

Treatment.—Under general anesthesia the ethmoids and sphenoids were exenterated and a large window resected from the naso-antral wall.

The after treatment was similar to the first case; the discharge promptly diminished in quantity and the headaches stopped. At the end of four months the discharge was very scanty. There was no return of the fetid breath. Her com-

plexion has cleared up and she has gained considerably in weight. There is no improvement in the atrophic condition and the dryness is somewhat troublesome but she considers herself cured.

CASE 3. A boy of twelve, who complained of severe frontal headaches, which had been growing worse for three years. He also had obstruction to nasal breathing, fetid breath, and a profuse purulent discharge with crusts. He was under size and poorly nourished.

Rhinoscopic examination showed a marked deviation of the septum, which considerably obstructed both nostrils and, in addition, atrophic turbinates and membrane. Pus was seen coming from the middle and superior meatus; the floor of either frontal sinus was tender on pressure.

Treatment.—His ethmoids and sphenoids were exenterated under local anesthesia and found to contain pus. The naso-frontal ducts were enlarged, the frontal sinuses also contained pus.

He was several days recovering from the operation, which was rather severe for one of his age and condition.

The headaches were entirely relieved, the discharge gradually diminished until at the end of three months there was very little, and I might say, in my experience there always remains after total ethmoid exenteration a scanty discharge.

At the present time, (eight months later) he has no headaches, no odor to the breath, and looks and feels fine. He has gained six pounds in weight. The atrophy remains unchanged, but there is no discomfort from dryness, which I attribute to the deviation of the septum which greatly retards the air currents through the nose.

Of course these three cases would hardly be called a series, but from my study of them I find certain things common to them all, that is, the atrophy in each case is accompanied by suppurative multi-sinusitis. The headaches cause a large part of the suffering and result from the sinusitis.

The anemia which was present in these cases was probably toxic in origin and is evidently secondary to the sinus disease because the eradication of the suppuration relieved it. The large crusts are the dessicated discharge from the suppurative sinusitis and the fetid odor is due to the putrefaction of portions of this discharge under the crusts.

The dryness of the nose and throat, I believe, is not entirely due to the atrophic conditions of the membrane because the large volume of air passing through the nasal chambers would naturally take up any moisture present and the obstruction from the deviated septum in Case Three renders him quite comfortable as far as dryness is concerned.

The atrophy, once it has taken place, is permanent regardless of any treatment as far as I can ascertain. The sense of smell which was entirely lost in all these cases has in some degree returned.

Cases 1 and 2 will be greatly improved by the use of wax under the membranes which I intend to use soon.

DISCUSSION.

Dr. Wm. J. Bird, Flint, opened the discussion on Dr. Welsh's paper, advising early operation after diagnosis. He believes transillumination of the globe, one of our best means of diagnosis.

Dr. L. A. Roller, Grand Rapids, reported three cases occurring in his practice, two of which he has lost track of. The other died after enucleation. He regards this condition as being very grave.

Dr. W. P. Gamber, Muskegon, reported one case of glioma coming under his observation, that resulted fatally after enucleation.

Dr. E. N. Smith, Grand Rapids, thought the "watchful waiting" policy was preferable, owing to the grave outcome, and empty sockets being left as a reminder of the diseased condition.

Dr. R. J. Kirkland, Grand Rapids, spoke of one case seen and operated upon in which an artificial eye has been worn for twelve years. The growth appeared in this case to be round celled sarcoma.

Dr. E. J. Bernstein, Kalamazoo, has seen two or three cases in his practice and he advised early enucleation after diagnosis has been made and after consultation with at least two or three other oculists.

Dr. Welsh, closing, stated that the extension of the disease is through the nerve and not by continuity of the orbital tissue. In cases below three years of age he finds increased tension.

Dr. E. N. Smith, Grand Rapids, opened the discussion on Dr. Shank's paper and spoke of the difficulty encountered in treating ozena. He mentioned the serum treatment as conducted in Vienna.

Dr. W. G. Bird advocated the use of scarlet red in 5 per

cent. solution of mucilage of acacia as it is retained for forty-eight hours on mucous membranes.

BUSINESS MEETING.

The meeting was called to order in Dr. Welsh's office by the President.

Dr. D. Emmett Welsh presented the following applications for membership: R. J. Kirkland, Grand Rapids, E. W. Tolley, Grand Rapids, O. L. Kicker, Cadillac, and Herman C. Hill, Benton Harbor.

The President explained that the requirements for membership in our association are the same as that of the American Academy of Ophthalmology and Oto-Laryngology.

The applications were placed on file to be voted on at the next meeting.

There were present from out of town, Drs. Bernstein, Winter, Bird, Gamber, besides several guests.

WILFRID HAUGHEY, Secretary.

EATON COUNTY

The annual meeting of the Eaton County Medical Society was held at Charlotte, Michigan, Oct. 29, 1914, with a good attendance. The program was as follows:

1. Business meeting called to order at Dr. Sackett's office by President Stimson.
2. Reading of minutes of last meeting.
3. Communication.
4. Report of Secretary and Treasurer.
Dr. Sackett.
5. Report of Delegates at State Medical Society.
Dr. Rockwell.
6. Presentation of eleven applications for membership to this Society. This good work was carried on by Mr. Singer of the A.M. A. whom we wish to thank very kindly.
7. A movement is on foot to have our meetings every two months, if not every month. This will be discussed and voted upon at our next meeting.
8. Election of officers. The officers chosen for the ensuing year are as follows:
President—W. E. Newark, Charlotte.
Vice-Pres.—Walter Taylor, Pottersville.
Sec. and Treas.—G. M. Byington, Charlotte.
Delegate to Mich. State Med. Society—
A. R. Stealy, Charlotte.
Alternate—A. H. Burleson, Olivet.
Member Medico-Legal Committee—A. W. Adams, Bellevue.

Adjourned for dinner.

2:00 P. M.

Neurological Clinic was held at the Hospital by Dr. David Inglis of Detroit. Ample clinical material was present and all profited very much by Dr. Inglis' interesting discussion of these cases.

I am quite sure that all members present returned home, feeling that their time had been well spent and their profit had been greater than their loss. At each meeting we endeavor to have something interesting, usually some one who is a live wire to hold a clinic.

Be sure to attend our next, the last Thursday in January. We want you there.

G. M. BYINGTON, Secretary.

GENESEE COUNTY

The annual meeting of the Genesee County Medical Society was held October 27, 1914, in the Masonic Temple, Flint, Mich.

Program.

"The Necessary Preparation for Prostatectomy."

Dr. Dean Loree, Ann Arbor.

Discussion opened by Dr. H. E. Randall.

"Cardiac Disease Associated With Mental Symptoms."

Dr. P. E. Crawford.

Discussion by Dr. J. G. R. Manwaring.

The following officers were elected for the year 1914-1915:

President—B. E. Burnell.

Vice-President—C. H. O'Neil.

Secretary—R. S. Morrish.

Treasurer—F. B. Miner.

Board of Directors—To 1917, J. G. R. Manwaring. To 1919, A. S. Wheelock.

Delegates to the State Society Meeting—H. A. Stewart, W. G. Bird.

Alternates—C. P. Clark, J. C. Benson.

Member of Medico-Legal Committee—H. R. Niles.

The Annual report showed that the society has become incorporated during the year and has an active membership of eighty-three, or a percentage of 93.2 of all eligible practitioners in the county. The publication of a bulletin, while new to the Society has evidently found its place and has created an interest in society work. With the experience of the past year, the editorial staff hopes to be in a position to offer a superior paper to the members and to serve as a stimulative to greater activity.

The President, Secretary and senior members of the Board of Directors were appointed, ex-officio, to act as a committee to co-operate with the State Board of Registration in Medicine, to enforce the Medical Practice Act in Genesee county.

After the business meeting dinner was served at the Woman's Exchange in the Y.W.C.A., about forty being present.

R. E. MORRISH, Secretary.

KALAMAZOO ACADEMY OF MEDICINE

PROGRAM

Tuesday, October 27, 1914. 1:30 p. m. Public Library Building.

1. Technic and Treatment of some Common Diseases.

Dr. R. N. Dunnington, Hartford.

Discussion by Drs. W. E. Collins, D. J. Scholten.

2. Diagnosis of Extra-uterine Pregnancy.

Dr. Leslie DeWitt, Kalamazoo.

Discussion by Dr. C. E. Boys.

3. (a) Pathological Physiology of Intestinal Function.

(b) Therapeutics of Intestinal Toxemia.

Dr. E. L. Eggleston, Battle Creek.

Discussion by Dr. A. W. Crane.

PROGRAM

Tuesday, November 10, 1914. 1:30 p. m. Academy of Medicine Rooms. Public Library Building.

Luncheon at the Park-American at 12 o'clock noon.

1. Clinic on Dermatology and Syphilis.

Dr. Udo J. Wile, Ann Arbor.

2. The Treatment of Crossed eyes in Children.

Dr. Walter R. Parker, Detroit.

Discussion by Dr. E. P. Wilbur, F. E. Grant and E. J. Bernstein.

PROGRAM

Special meeting, Thursday, November 12, 1914 at 8:00 p. m. Academy of Medicine Rooms. Public Library building.

Dinner at the Park-American at 7:00 p. m.

1. The Present Status in the Etiology of Cancer in the Light of Experimental Research and Clinical Observation—Lantern Slide Demonstration.

Dr. H. R. Gaylord, Buffalo, N. Y.

KENT COUNTY**PROGRAM**

Wednesday evening, November 11, 1914. Chamber of Commerce building.

Meeting called to order promptly at 8:15 o'clock.

ROUTINE BUSINESS.

"Some Observations on Hereditary Syphilis With Report of a Case."

Dr. C. E. Hooker.

"The Differential Diagnosis Between Functional and Organic Heart Murmurs With Special Reference to Life Insurance."

Dr. C. H. Johnston.

"A Discussion of One Hundred Consecutive Appendectomies."

Dr. F. C. Warnshuis.

"Report of Two Cases of Laryngeal Stridor."

Dr. F. N. Smith.

"Report of Two Cases of Insanity Following Pregnancy."

Dr. A. V. Wenger.

MARQUETTE-ALGER COUNTY

The October meeting of the Marquette Alger County Medical Society was held at the Morgan Heights Sanatorium Tuesday, Oct. 20 at the invitation of the Board of County Supervisors. Doctor C. Leslie Finch, Superintendent of the Sanatorium read a paper dealing with tuberculosis as related to sanatorium care treatment and a general discussion followed.

The Morgan Heights Sanatorium for the care and treatment of tubercular persons was built in 1911 by Marquette County at a cost up to the present of about \$30,000. It has a capacity of twenty and this can be increased by the erection of more shacks. They have eighty acres and the appearance of the grounds and buildings indicate a prosperous model farm, as in fact it is. The care of the grounds and garden employ some of the time of those patients who need the exercise. The housing of the patients and the treatment are in line with modern thought and everything possible is done to give a homelike air to the place and to eliminate all appearances of institutionalism. Doctor C. Leslie Finch, late of Flint, is the resident superintendent and is doing good work. There is no doubt but that the influence emanating from this Sanatorium will be most beneficial to the people to this and the surrounding counties. The education of the public to the possibilities of care and prevention in this disease is most important. The Morgan Heights Sanatorium certainly affords a shining example of what great public service a single county is able to give.

C. B. FELCH, Secretary.

TRI-COUNTY

At the last meeting of the Tri-County Medical Society, the following officers were elected for the year 1915:

President—Dr. W. J. Smith, Cadillac.

Vice-President—Dr. S. E. Neihardt, South Boardman.

Sec.-Treas.—Dr. Rudolph J. E. Oden, Cadillac.

Board of Directors—Drs. C. E. Miller, W. F. Huntly, and W. J. Smith.

Program Committee—Drs. R. J. E. Oden, D. Ralston and G. Miller.

Delegate to State Society—Dr. Rudolph J. E. Oden.

Alternate to State Society—Dr. E. R. Babcock, Kalkaska.

Finance Committee—Drs. Wardel, Wallace and McMullen.

A well prepared paper on "Osteomyelitis" was read by Dr. W. J. Wallace of Manton. A general discussion followed.

R. ODEN, Secretary.

WAYNE COUNTY**PROGRAM**

Monday, Nov. 9—Medical Section.

Perpetual Irregularity of the Heart. Lantern Denomstration. (Auricular Fibrillation).

Dr. Walter J. Wilson, Jr.

Discussion opened by Dr. Charles G. Jennings. Dr. Wm. M. Donald, Dr. Hugo Freund.

Report of the joint committee appointed by the Wayne County Medical Association, the East Side Physician's Association and the West Side Physician's Club, to consider the advisability of establishing a Credit Bureau.

To the Wayne County Medical Association:

I. We recommend the establishment of a credit or rating bureau.

II. Said bureau to be called "the Detroit Physician's Business Bureau.

III. A Committee to draft a Constitution and By-Laws.

IV. Said constitution and by-laws be submitted to each society for approval.

V. A policy as follows:

(a) The listing and prevention of bad accounts.

(b) A physician's business efficiency expert, (optional).

(c) A business educational campaign.

1. Yearly meetings in each society given to the study of better business methods.

(d) Investment information.

(e) Bookkeeping (optional).

(f) Collections (if deemed advisable later).

VI. Membership in this Bureau to consist of members in good standing in either the Wayne County Medical Association, the East Side Physician's Association, the West Side Physician's Association or any other recognized Medical Society.

VII. This Bureau to be under the control of a Board of Control, from representation from each society.

VIII. The headquarters of this bureau to be in the Wayne County Medical Society building.

IX. Provision in the By-Laws for the payment of listed accounts at the office of the bureau to a bonded office assistant.

Respectfully submitted,

J. E. Davis, Chairman.

The report of this committee was accepted and the committee was continued in office to complete their recommendations.

PROGRAM

Monday, Oct. 26—Surgical Section.

Observations from over 1,000 Cystoscopic Examinations With Illustrations.

Dr. William J. Cassidy.

Discussion opened by Dr. John C. Dodds, Dr. William E. Keane.

GENERAL MEETING.

October 19.

Mr. Barrett, Secretary of the Detroit Convention Bureau, appeared before the Society to offer the aid of the Bureau in inviting the American Medical Association to hold the 1916 meeting in this city. The providing for a meeting or convention of this size is a very difficult undertaking and moreover, other large cities of the country are desirous of the honors and benefits which it may bring. The Convention Bureau is organized to meet the problems arising under these circumstances, the housing of the visitors, the halls of the meetings and other features of entertainment and education. He read a letter from Dr. V. C. Vaughan, Sr., President of The American Medical Association. While Dr. Vaughan would like to see the meeting held here, he doubts whether there is sufficient hotel room for the 12,000 or more who will be brought to the city, whether the places for the various section meetings are located to best advantage. Mr. Barrett believes that the objections of Dr. Vaughan can easily be met and hopes that we can convince the association of that fact.

The matter was referred to the Executive Committee for consideration and action.

The Constitution and By-Laws as drawn up by the committee and amended in general meeting were voted upon. These were adopted as amended except that the amendment of Chapter XI was voted down and the chapter as originally draughted by the committee was adopted.

PROGRAM.

Monday, Nov. 2—General Meeting.
Surgery of the Caecum.

Dr. James E. Davis.

Discussion opened by Dr. L. J. Hirschman, Dr. J. A. MacMillan, Dr. H. W. Hewitt.

Book Reviews

THE CLINICS OF JOHN B. MURPHY, M.D., at Mercy Hospital, Chicago. Volume III. Number V. Octavo of 190 pages, 61 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Published Bi-Monthly. Price per year: Paper, \$8.00. Cloth, \$12.00.

A glance at this contents is sufficient to impart the value of this number of these valuable clinics.

Murphy's Clinical Talks on Surgical and General Diagnosis.

A Diagnostic Talk on the Symptoms and Signs of Renal and Ureteral Stone, Illustrated by a Case.

The Differential Diagnosis of the Causes of Hematuria.

Intrathoracic Sarcoma Starting from the Vertebral Column, Differential Diagnosis.

A Talk on the Diagnosis of Meningitis and the Differentiation of its Varieties.

Perinephritic Abscess, Probably Embolic in Origin. Traumatic Epilepsy.

Epithelioma of Glans Penis.

Carcinoma of the Corona Penis With Metastasis in the Inguinal Glands.

Fecal Fistula.

Old Inversion Fracture of the Ankle.

Inversion Fracture of the Ankle Treated as a Pott's Fracture.

Old Inversion Fracture of the Left Ankle Treated.

Old Pott's Fracture.

Removal of Nail from the Right Tibia and Os Calcis.

A Recent Report from an Old Case of Knee Arthroplasty.

Arthroplasty of the Knee for Bony Ankylosis.

Arthroplasty of the Elbow for Complete Bony Ankylosis Between the Humerous and Ulma in a Position of Complete Extension.

Hypertrophy of the Middle Lobe of the Prostate, Urinary Retention.—Prostatectomy.

Impertrophy Anus.

The Use of Radium and the X-Ray in the Treatment of Cancer.

ABDOMINAL OPERATIONS. By Sir Berkeley Moynihan, M.S. (London) F.R.C.S. Leeds, England.

Third edition, entirely reset and enlarged. Two octavo volumes totaling 980 pages, with 371 illustrations, 5 in colors. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$10.00, net; Half Morocco, \$13.00 net.

This third edition—so thoroughly revised that the work has been re-set from cover to cover, contains 150 pages of the new text and 80 new illustrations—is in every reality an atlas of abdominal surgery. It thus becomes the best work on the subject. It is a personal record of the author's vast and varied experiences. It is a practical necessity for everyone engaged in abdominal surgery. We know of no other publication that covers the field so thoroughly and satisfactorily as does this work.

You get Moynihan's successful methods of diagnosis and technic. The bacteriology of the stomach and intestines is considered very fully. Of equal importance are the chapters on preparation and sterilization of the patient and operator, complications, sequels and after care.

The various operations are described in detail and the text is made clearer by the valuable illustrations and illustrative cases and case histories.

The question of drainage, of paramount importance in abdominal surgery, is clearly presented in a definite manner.

It is difficult to select any one feature of the work that deserves greater comment than do others. The entire contents of the two volumes is of such nature that Moynihan's Abdominal Operations must long occupy a pre-eminent position in surgical literature. The profession should indeed be grateful to the publishers for presenting them with this opportunity of securing the experience and teachings of so eminent authority as is Moynihan.

THE PRACTITIONER'S VISITING LIST FOR 1915. Four styles: weekly, monthly, perpetual, sixty-patient. Pocket size; substantially bound in leather with flap, pocket, etc.: \$1.25, net. Lea & Febiger, Publishers, Philadelphia and New York.

This is a practical convenience which, once possessed by the busy medical man, immediately becomes indispensable. It is a matter of common remark that most forms of pocket memoranda are admirably designed to further the immediate and permanent loss of the data it is desired to preserve. This, happily is not the case with this carefully designed Visiting List and pocket consultant, which is the final evolution of 30 years' experience in meeting and anticipating the needs of the practising physician.

It affords a simple and complete system for keeping the records of daily practice. In addition to the ruled pages for daily calls and their notes, general memoranda, addresses, cash account, etc., it contains specially arranged spaces for data desired for permanent record such as births, deaths, etc. The value of such records is best appreciated by the physician who has been suddenly confronted by the

necessity of producing such data after the lapse of years and in the absence of an orderly system for the preservation.

If the record blanks constitute a complete and thoroughly convenient record of practice, effectual insurance against financial loss or an overburdened memory, the supplementary text constitutes a handy reference work of equal value in practice or emergency. Among the useful features are tables of weights and measures and comparative scales; a scheme of dentition; incompatibles; poisons and antidotes; directions for affecting artificial respiration; an extensive table of doses; an alphabetically arranged table of diseases and remedies; table of eruptive fevers; instructions for urinalysis and directions for ligation of arteries.

THE TONSIL, FAUCIAL, LINGUAL AND PHARYNGEAL. With Some Accounts of the Posterior and Lateral Pharyngeal Nodules. By Harry A. Barnes, M.D., Instructor in Laryngology, Harvard Medical School; Surgeon in the Department of the Nose and Throat, Boston Dispensary; Assistant Laryngologist, Massachusetts General Hospital, etc. 16 pages, illustrated. Cloth, price \$3.00. C. V. Mosby Co., St. Louis, Mo.

The mass of literature that has appeared in various medical publications during the past several years has not been entirely satisfactory, especially to the general practitioner. Opinions expressed have been varied and wide. Many important points remain untouched and the tonsil has thus been a problem whenever the physician's attention was directed to it.

A satisfactory and fairly dependable basis has been desired and is supplied in this effort of the author. He discusses in an open yet pointed manner nature of lymphoid tissue, the development of the tonsil, its anatomy and histology, function, pathology and diseases, complications and treatment, medicinal and surgical. The clearness of the discussion is refreshing. All in all one is presented with a valuable treatise and from it he will gain information that will enable him to advise satisfactorily all who may consult him regarding their tonsils. It is a work especially adapted to the general practitioner. We commend it to them with the assurance that they will value it highly and refer to it often.

PATHOGENIC MICROORGANISMS. (Including Bacteria and Protozoa). A Practical Manual for Students, Physicians and Health Officers. By William H. Park, M.D., Professor of Bacteriology and Hygiene in the University and Bellevue Hospital Medical College, and Director of the Bureau of Laboratories of the Department of Health, New York City, and Anna W. Williams, M.D., Assistant Director of the Bureau of Laboratories, New York City; Consulting Pathologist to the New York Infirmary for Women and Children. New (5th) edition, thoroughly revised. Octavo, 684 pages, with 210 illustrations and nine full-page plates. Cloth, \$4.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

The appearance of a new edition of this favored and standard work is not only justified but demanded by the advances which have been recorded in this department, and which the authors have presented in complete detail. They have not, however, limited themselves to bringing this work strictly up to date, but have added greatly to its general usefulness by a substantial enlargement of the sections devoted to the practical application of this science. The

revision has been so thorough that this edition is virtually a new book.

The student and laboratory worker, the sanitarian and the practitioner will find this work equally well suited to their needs. The features that have won recognition in its previous editions have been substantially amplified, while every advance has been treated in the light of the author's unexcelled opportunities for laboratory investigation, and summarized for reference.

New sections have been added and entire chapters rewritten. The material has been quite generally re-arranged in order to bring more closely together all the pathogenic organisms. Under this arrangement, Part One deals with general characteristics and methods of study of all the micro-organisms; Part two includes the study of individual pathogenic micro-organisms and their near relatives; Part Three is devoted to "Applied Micro-biology."

The orderliness of its arrangement, simplicity of expression, and attention to details makes this work of particular value to the student. It is a thoroughly safe guide to laboratory procedure and affords valuable detail in technic not available elsewhere.

Much essential data has been added to the sections devoted to the consideration of immunity, the filtrable viruses; preparation and use of media and aniline dyes. The work has a peculiar claim on the appreciation of the general practitioner. Its authors are bacteriologists who deal constantly with practical problems. It presents many points of value for him aside from its usefulness as a compendium of all that science has accomplished in this field and as a laboratory guide.

Its splendid index makes it a most convenient work of reference. It considers protozoa and bacteria in close relation to the symptoms and clinical manifestations produced by them, a point of interest to the practitioner in search of information on the practical application of this science.

The broad scope of this work is evidenced by the full consideration accorded such subjects as soil and sewage bacteria, the bacteria of industry; disinfectants; the bacteriology of milk in relation to disease; bacteriological examination of air, water and soil; and water purification.

MEDICAL JURISPRUDENCE. A Statement of the Law of Forensic Medicine. By Elmer D. Brothers, B.S., L.L.B., Member of the Chicago Bar; Lecturer on Jurisprudence in the Medical and Dental Departments of the University of Illinois and in the John Marshall Law School. Cloth, 295 pages. Price \$3.00. C. V. Mosby Co., St. Louis, Mo.

So many of the existing works on Jurisprudence are but mere repetitions of illustrative cases from which the reader must form his own conclusions, and lacking legal training his conclusions may be erroneous. This author presents the profession with a most commendable volume, written understandingly and so explicitly that the reader cannot help but acquire a full knowledge of the subject.

The legal rights of patient, physician, surgeon, relatives and friends are set forth so as to leave no room for misunderstanding or question.

Many a worry may be done away with if professional men were more familiar with their legal rights, privileges and responsibilities. You can secure this familiarity and peace of mind if you but purchase and read this satisfactory work.



